

# **Penitencia Creek Park Chain Reach 2 Park Master Plan Narrative Report**

**June 2002**

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Prepared for  
City of San José  
Parks, Recreation & Facilities Division  
Department of Public Works  
by  
*Amphion*

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**June 2002**

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Approved by the City of San José  
Parks & Recreation Commission  
May 1, 2002

Approved by the City of San José  
Council  
June 4, 2002

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## CONTENTS

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i.	<b>Executive Summary</b>	i
	Overview & Purpose	
	Existing Conditions	
	The Proposed Plan	
	Projected Construction Costs	
I.	<b>Introduction</b>	1
	Purpose	
	Setting	
	Consistency with Other Plans	
	Goals	
	Planning Process	
II.	<b>Existing Conditions</b>	3
	Land Use	
	Current Agency Operations	
	Opportunities & Constraints Plan Map	
III.	<b>Regulatory Requirements &amp; Policies</b>	10
	Regulatory Setting	
	City Responsibilities	
IV.	<b>Proposed Park Amenities &amp; Trail Facilities</b>	12
	The Concept	
	The Master Plan - Access & Circulation	
	The Master Plan - Park Facilities	
	The Master Plan - Park Landscaping	
	The Master Plan - Security Lighting	
	The Master Plan - Perimeter Treatments	
	The Master Plan - Public Art and Interpretive Exhibits	
	Coordinating with Future Flood Protection Improvements	
V.	<b>Proposed Construction Budget</b>	22
	Projected Construction Costs	
	Estimating Park Construction Costs	
VI.	<b>Sources</b>	25





## **i. Executive Summary**

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### **Overview & Purpose**

The *Penitencia Creek Park Chain Reach 2 Master Plan* was prepared for the City of San José with input from the community and a Technical Advisory Committee comprised of representatives from the Santa Clara Valley Water District and the County of Santa Clara. The master planning process began in July 2000 and was completed in the Fall of 2001.

The *Penitencia Creek Park Chain Reach 2 Master Plan* was developed to provide a park design that is consistent with the goals and objectives of the 1977 Penitencia Creek Park Chain Master Plan and the terms of the 1981 tri-party agreement (between the City of San José, the Santa Clara Valley Water District and the County of Santa Clara).

### **Existing Conditions**

Penitencia Creek Park Reach 2 is a 26- acre park site under the shared ownership of the City of San José (City), the County of Santa Clara (County) and the Santa Clara Valley Water District (District) and the Berryessa Union School District. The park site is located between Piedmont Road (to the west) and Noble Avenue (to the east) in the Berryessa Community of San Jose.

The Penitencia Creek riparian corridor forms the southern boundary of the park. This riparian corridor is a significant biotic resource and provides opportunities to connect to the Bay Area Ridge Trail as it extends westward from Piedmont Road.

The remaining surrounding area around the park site is predominately residential with a variety of supporting facilities including schools, neighborhood parks, a fire station, a library and small pockets of local retail businesses.

The park site includes: three groundwater recharge ponds that were designed for flood protection and water recharge, Penitencia Creek, a remnant grove of walnut trees, a parking lot, and the Noble House, which is used to hold meetings and workshops for the community.

### **Regulations and Policies**

Development and implementation of this Master Plan will rely on the cooperation of the public agencies that own the property and the local, regional, state and federal agencies that have jurisdiction over this parkland site.

This master plan has been designed, where possible, to avoid disruption to special status species or the biotic resources that support them, and to be consistent with the riparian setback requirements set forth in the City Riparian Policy. Construction of the project facilities will need to consider current environmental regulations and the City will need to secure permits from affected agencies prior to the start of construction. The regulatory agencies with potential influence over the implementation of the project include, but are not limited to: US Army Corps of Engineers, US Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish and Game, Regional Water Quality Control Board, and County Department of Health Services.

## **The Proposed Plan**

The preparation of this Master Plan for Penitencia Creek Park Chain Reach 2 is consistent with the goals of earlier planning documents. In keeping with the overall concept for the 1977 *Penitencia Creek Park Chain the Master Plan*, the Master Plan for Reach 2 has been created with three zones or intensities of development and use. These zones include: 1) a Natural Zone of very low intensity development adjacent to Penitencia Creek with activities in this area focused on trail use; 2) a Transition Zone of lakes and habitat areas that will be centered on water related improvements; and 3) an Activity Zone, which will be established furthest from the creek and will include the most active recreational facility development. Developed facilities will include a restroom, picnic sites, irrigated turf area for informal play, and parking. A floating pier will be located at the northern edge of Pond 3 providing a connection between the water and the "activity zone".

## **Projected Construction Costs**

The design and construction costs for completing the Penitencia Creek Park Reach 2 are estimated to be \$3,715,000. For an itemized cost estimate for each park component refer to *Section V. Proposed Construction Costs*.

## I. Introduction

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### **Purpose**

The *Penitencia Creek Park Chain Reach 2 Master Plan* was developed to provide a park design that is consistent with the goals and objectives of the County of Santa Clara's 1977 *Penitencia Creek Park Chain Master Plan* and the terms of the 1981 tri-party agreement. To see where Reach 2 fits into the overall design of park chain, and for a more detailed discussion on each reach, refer to the 1977 *Penitencia Creek Park Chain Master Plan* on file with the County of Santa Clara Parks and Recreation Department. The Reach 2 Master Plan also addresses current policies and regulations. The resulting plan is intended to provide a park design that will accommodate public recreation, open space, flood protection, water management and conservation. It is based on the findings of the *Penitencia Creek Reach 2 Park Master Plan Feasibility Report* (Appendix A), which was prepared with the assistance of the Technical Advisory Committee and public input on several design alternatives.

### **Setting**

The Penitencia Creek Park Chain is located in the northeasterly section of Santa Clara County, California near the southern end of the San Francisco Bay. The Penitencia Creek riparian corridor forms the southern boundary of the park and is one of only two continuous riparian corridors extending between Coyote Creek and the Diablo Mountain Range. Penitencia Creek Park Chain Reach 2 is a 26- acre park site totally under public ownership. It is owned by the City of San José, the County of Santa Clara, the Santa Clara Valley Water District and the Berryessa Union School District (see Land Ownership Map).

### **Background - Consistency with Other Plans**

Creation of a creekside park chain has been consistently proposed by various agencies throughout the County since 1935. In 1977, the County of Santa Clara, with the assistance of the Berryessa Community, the City of San José and the Santa Clara Valley Water District, prepared the *Penitencia Creek Master Plan* for the entire creekside park chain. The creekside park chain extends between Coyote Creek to the west and Alum Rock Park to the east. Design improvements for the park chain were divided up into seven reaches for ease of discussion and phased implementation.

As a result of the 1977 master plan, the City of San José, Santa Clara County and the Santa Clara Valley Water District entered into a tri-party agreement on July 6, 1981. This agreement defines the responsibilities for joint use and development of the park chain for park, recreation, open space, flood protection and water conservation purposes.

In keeping with the original master plan and the agreement, the County of Santa Clara developed a preliminary Master Plan for Reach 2 in the late 1980's. This plan showed a shared use creekside trail, informal turf play and picnic areas, a restroom, community center, landscaping for wildlife enhancement, perimeter buffer landscaping and reconfiguration of the existing recharge ponds. Due to a lack of funding, this preliminary plan was never finalized, adopted or implemented.

The preparation of this Master Plan for Penitencia Creek Park Chain Reach 2 by the City of San José follows these earlier planning documents and agreements. The new plan has been expanded and refined to be consistent with new design standards, City policies, and Federal and State environmental regulations. It takes into account current informal uses of the site,

the community's current desires for park amenities, recent modifications to the site by the District for flood protection, and the flood protection studies now underway by the US Army Corps of Engineers. It also takes into account research conducted as part of the development of the 1995 *Santa Clara Countywide Trails Master Plan* and planning for the Bay Area Ridge Trail.

## Goals

The goals for this master plan adhere to the major themes that were laid out in the 1977 *Penitencia Creek Master Plan* and provide the foundation for the development of this master plan. Accordingly, the park master plan for Penitencia Creek Park Chain Reach 2 strives to:

- Benefit the daily life-style of the users by providing a chance for city residents to be exposed to a natural setting in an urban environment.
- Provide immediate accessibility to the regional park chain and associated trail.
- Bring together involved public agencies in a single purpose benefiting the community.

A more complete listing of the plan objectives and planning criteria for this Master Plan can be found in *Appendix A The Penitencia Creek Reach 2 Park Chain Master Plan Feasibility Report*.

## Planning Process

The *Penitencia Creek Park Chain Reach 2 Master Plan* was prepared for the City of San José Parks and Recreation Facilities Division of the Department of Public Works. The master planning process began in July 2000 and was completed in the Fall of 2001.

The planning process involved coordination with the City and the consultant team consisting of landscape architects and environmental planners. The consultant team's research was augmented by input from the community, the council member from their district, and a Technical Advisory Committee comprised of representatives of the Penitencia Creek 1981 tri-party agreement (the City of San José, the County of Santa Clara County and the District). Each of these agencies will be directly impacted by and/or directly impact the design of the park through their policies, missions and operational requirements. Public outreach for this project included two community meetings: one on January 17, 2001 and one on March 12, 2001. Notices were sent to all residents within 1000 feet of the park, as well as to special community organizations such as the Berryessa Community Advisory Council (BCAC).

The planning process incorporated the following elements in the project:

- Project coordination among members of the tri-party agreement
- Site analysis of existing conditions
- Preparation of the Feasibility Study Report of Opportunities and Constraints with guidance from the Technical Advisory Committee
- Development of the Conceptual Master Plan Alternatives
- Community Meeting #1 to present Conceptual Master Plan Alternatives
- Preparation of the Preliminary Master Plan based on community input
- Community Meeting #2 to present Preliminary Master Plan
- Preparation of Environmental Clearance Application
- Preparation of the Pre-Final Master Plan based on community input
- Presentation of Pre-Final Master Plan and CEQA Negative Declaration to Parks and Recreation Commission and City Council for approval

Following adoption of the *Penitencia Creek Park Chain Reach 2 Master Plan*, the City will implement the Master Plan. Full implementation will be contingent upon available funding. The estimated costs for the build out of this master plan are provided in this plan in *Section V Proposed Construction Budget*.

## II. Existing Conditions

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### Land Use

Reach 2 of the Penitencia Creek Park Chain is located in the Berryessa Community of San José. This area is predominately residential with a variety of supporting facilities. Within a one-mile radius of Reach 2 of the Penitencia Creek Park Chain are schools, neighborhood parks, a fire station, a library and small pockets of local retail businesses. Single family residences are located immediately adjacent to the east, north and west boundaries of the park. A Santa Clara County staff residence is located along the southern boundary of the park on the north side of Penitencia Creek. Immediately north of the park are Noble Elementary School, Noble Library and Noble Park.

The Penitencia Creek riparian corridor forms the southern boundary of the park. This natural feature is a valuable asset for people and wildlife in this urbanized area. The Valley Floor Alternative of the regional Bay Area Ridge Trail (see *San Francisco Bay Area Ridge Trail Map*) is delineated along Penitencia Creek on both the *Santa Clara Countywide Trails Master Plan* and the *San José Area Trails Map* (see *San José Area Trails Map*). This trail provides a link between the Coyote Creek Trail and Alum Rock Park. Completed portions of the Penitencia Creek Trail extend west of Piedmont Road along Penitencia Creek to Mabury/Jackson County Park. However, the trail is discontinuous with gaps where the trail crosses Capitol Expressway and Jackson Road.

Primary vehicle access to the park is from the north off Noble Avenue. Future trail connections to Reach 1 of the park chain will require a connection east across Noble Avenue, a minor collector road. The specific alignment across Noble Avenue will be determined as part of the overall design for Reach 1 of the park chain.

Piedmont Road and Penitencia Creek Road are major collector roads located to the west and south respectively. Bike facilities include bike lanes on Piedmont Road – Penitencia Creek Road to Berryessa Road; Berryessa Road - Coyote Creek to Capitol Expressway; Mabury Road – Capitol Expressway to White Road; Capitol Avenue – Landess to Capitol Expressway; and a bike trail paralleling Penitencia Creek – Piedmont Road to Mabury Road.

There are three recharge ponds within the park and they are all under the jurisdiction of the District. They were primarily designed to serve water-related functions for flood protection and water recharge; however, the ponds are also used for recreation in a number of informal ways (some accepted and some not authorized by the District). Current informal recreation uses include model boat launching, fishing and dogs swimming.

For a more complete description of the types and locations of the adjacent land uses refer to *Appendix A, The Penitencia Creek Reach 2 Park Master Plan Feasibility Report*.

### Current Agency Operations

1981 Penitencia Creek Park Joint Parties Agreement. The City of San José, the County of Santa Clara County and the Santa Clara County Valley Water District entered into a tri-party agreement on July 6, 1981 for the joint use and development of the Penitencia Park Chain for park, recreation, open space, flood protection and water conservation purposes.

This agreement was amended and updated on February 3, 1987 and then again on October 22, 1992.

City of San José. The City owns approximately 7 acres of the park site including the Noble House, which is located on the north park boundary. City staff and community groups use this house for meetings. Aside from the Noble House, there are no other City facilities on the park site. The City is currently allowing use of the park site for overflow parking for the Berryessa Community Arts and Wine Festival and other special events.

County of Santa Clara. Santa Clara County Park and Recreation Department owns approximately 3 acres of property along the southern boundary of the park site. A residential structure is located on the north side of Penitencia Creek on County property. An existing bridge provides access across the creek from Penitencia Creek Road to the residence. The County uses the residence for staff housing under the staff-in-residence program and plans to continue this use of the property. Northeast of the house is a large pasture area that is currently used to pasture a horse.

Santa Clara Valley Water District. There are three recharge ponds in the park and all are under the District's jurisdiction. They serve several water related functions including flood protection, water recharge, and potential emergency water supply. In addition, the District has authority over the Penitencia Creek along with several regulatory agencies (See *Section III-Regulatory Requirements and Policies*). The District owns approximately 16 acres.

Berryessa Union School District. The school district owns one small parcel (.06 acres) on the south side of Penitencia Creek adjacent to Penitencia Creek Road. This parcel is sandwiched between two water District parcels towards the westerly end of the site. Riparian vegetation and remnants of landscaping from a prior residence dominate this parcel. There are no structures currently on the site and the site is not being used for any official School District purpose. There are no plans to develop any part of the School District parcel as part of this master plan.

The *Land Ownership Map* shows the ownership patterns for this park site.

### **Opportunities and Constraints Plan Map**

The Opportunities and Constraints Plan illustrates the opportunities and constraints associated with developing this site as a public park. A summary of these opportunities and constraints is provided below. For a more complete discussion refer to *Appendix A-The Penitencia Creek Reach 2 Park Master Plan Feasibility Report*.

#### Opportunities

**Riparian Corridor.** The creek corridor is a significant biotic resource that offers a large expanse of shaded riverine aquatic cover providing good avian and mammal habitat. This area also provides opportunities to serve as an outdoor natural sciences classroom and to improve the continuity and quality of habitat. In addition, development of Reach 2 of the Penitencia Creek Park Chain will provide an opportunity to complete another segment of the Valley Floor Alternative of the regional Bay Area Ridge Trail.

**Community Relationships & Activities.** Within a one-mile radius of the park site there are a variety of community facilities including schools, libraries, neighborhood parks, a fire station, library and small pockets of local retail businesses. There is a potential to provide a connection between many of these community facilities and the park from the regional trail. In addition, park facilities and programs will be readily accessible to neighborhoods that surround this park.

**Flood Protection, Recharge Ponds & Perimeter Levees.** The recharge ponds, as well as the creek, provide essential floodwater containment and water transportation functions necessary for flood protection of the surrounding neighborhoods. They have also been engineered and designed for optimum water conservation and groundwater recharge. In addition to their District functions, the recharge ponds provide opportunities for wildlife habitat, wildlife viewing and water-related recreation uses.

**Landscaping.** The landscaping design for the park has the opportunity to augment the native riparian species located within the riparian creek corridor that runs between Noble Avenue and Piedmont Road and along the western edge of the recharge ponds, and to re-establish a naturalized California landscape in other areas of the park.

**Access, Parking & Circulation.** Access to the park can be provided from neighborhoods south and west of the park with the development of a regional trail link extending from Piedmont Road to the park entry on Noble Avenue. Bridges over the spillways can be developed to connect the two sides of the park and create a link in the regional trail. These bridges will also enhance the opportunities to view wildlife. Off-street parking will facilitate entry into the park and use of the park for picnicking and other recreation activities.

#### Constraints

**Riparian Trail Corridor.** Designs for facilities, construction activities and recreation programs for this project must comply with the Federal, State, City and District regulations and policies that regulate improvements in riparian habitat including any streambed alterations (See *Section III-Regulatory Requirements and Policies*).

**Community Relationships & Activities.** At-grade street crossings (Piedmont Road and Noble Avenue) could create potential conflicts between pedestrians and motorized traffic, limit neighborhood access, and create a barrier to trail continuity. While a grade separated trail crossing would generally be preferred, there are many environmental and safety factors (e.g. insufficient headroom clearance under the bridges, flooding, siltation and maintenance issues) that require the development of an at-grade design solution for these crossings.

In addition, the close proximity of many residences on three sides of the park may raise concerns about security, light/ glare control from park lighting, noise from park activities, and design of the park perimeter (e.g. fencing, landscape buffers could minimize visual access into residential backyards, but these screens could also limit views from the residences into the park and to the east foothills beyond).

**Flood Protection, Recharge Ponds & Perimeter Levees.** Development of the US Army Corps of Engineers (USACE) Flood Protection improvements will follow the completion of this master plan and the final flood protection solution may require reconstruction of some elements of the park. These improvements are not expected to occur for many years and, in the interim, the community would like to make recreational resources available to the public, understanding that some recreation amenities may need to be reconfigured in the future for flood protection purposes.

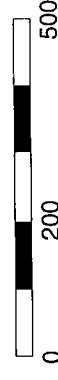
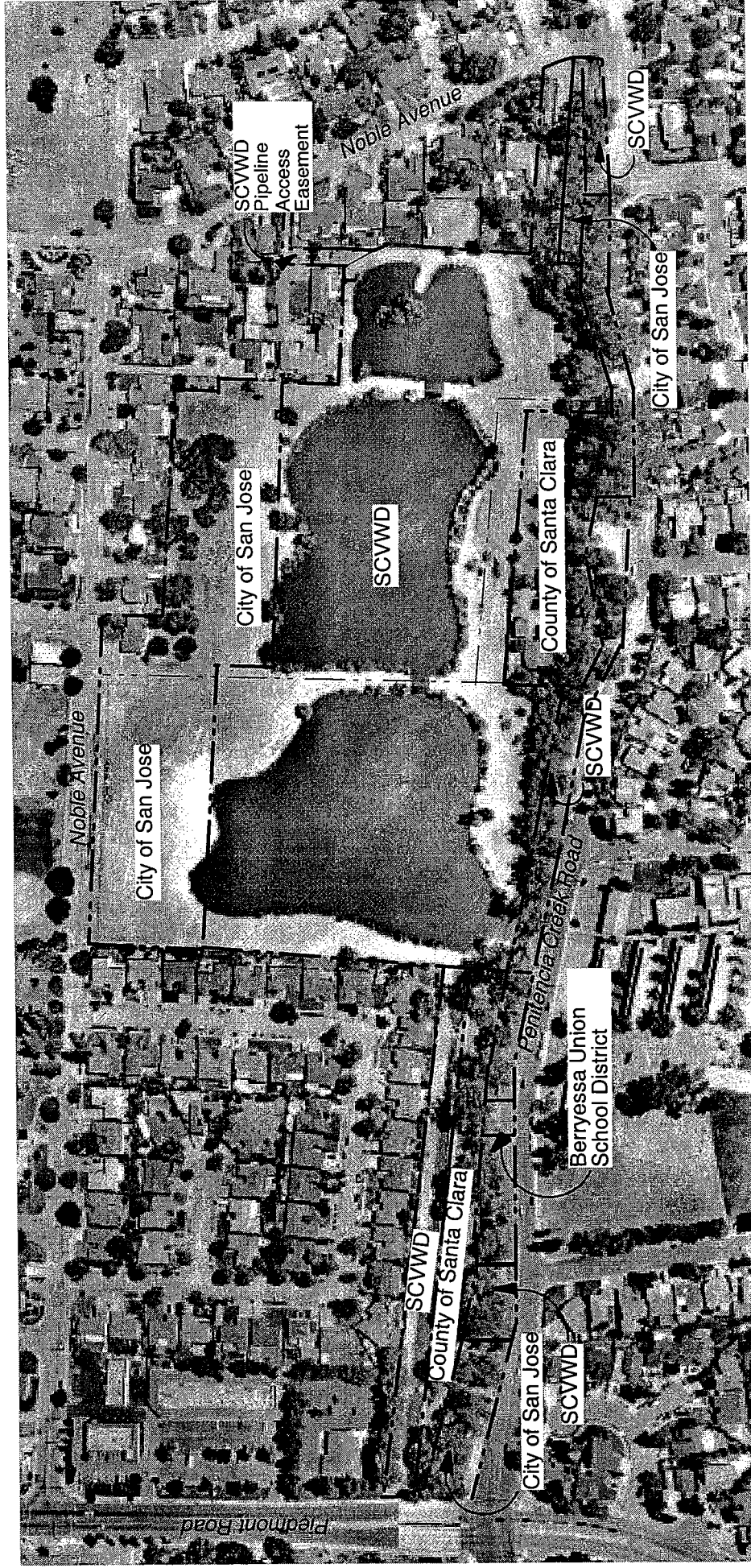
The recharge ponds and Penitencia Creek serve several water related functions including flood protection, water recharge, and potential emergency water supply. While the recharge ponds may also provide recreation benefits, there are safety issues related to the ponds that will dictate some decisions relative to the design of the park.



All of the park improvements will have to meet specific design and regulatory requirements. Agencies that may require approval include, but are not limited to: United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), California Department of Fish and Game (CDFG), Santa Clara Valley Water District and the County Department of Health Services.

**Landscaping.** District policies restrict landscaping on the levees and around the ponds. These restrictions, as well as the compacted soils found on much of the site, may limit the potential for planting trees, groundcovers and other vegetation.

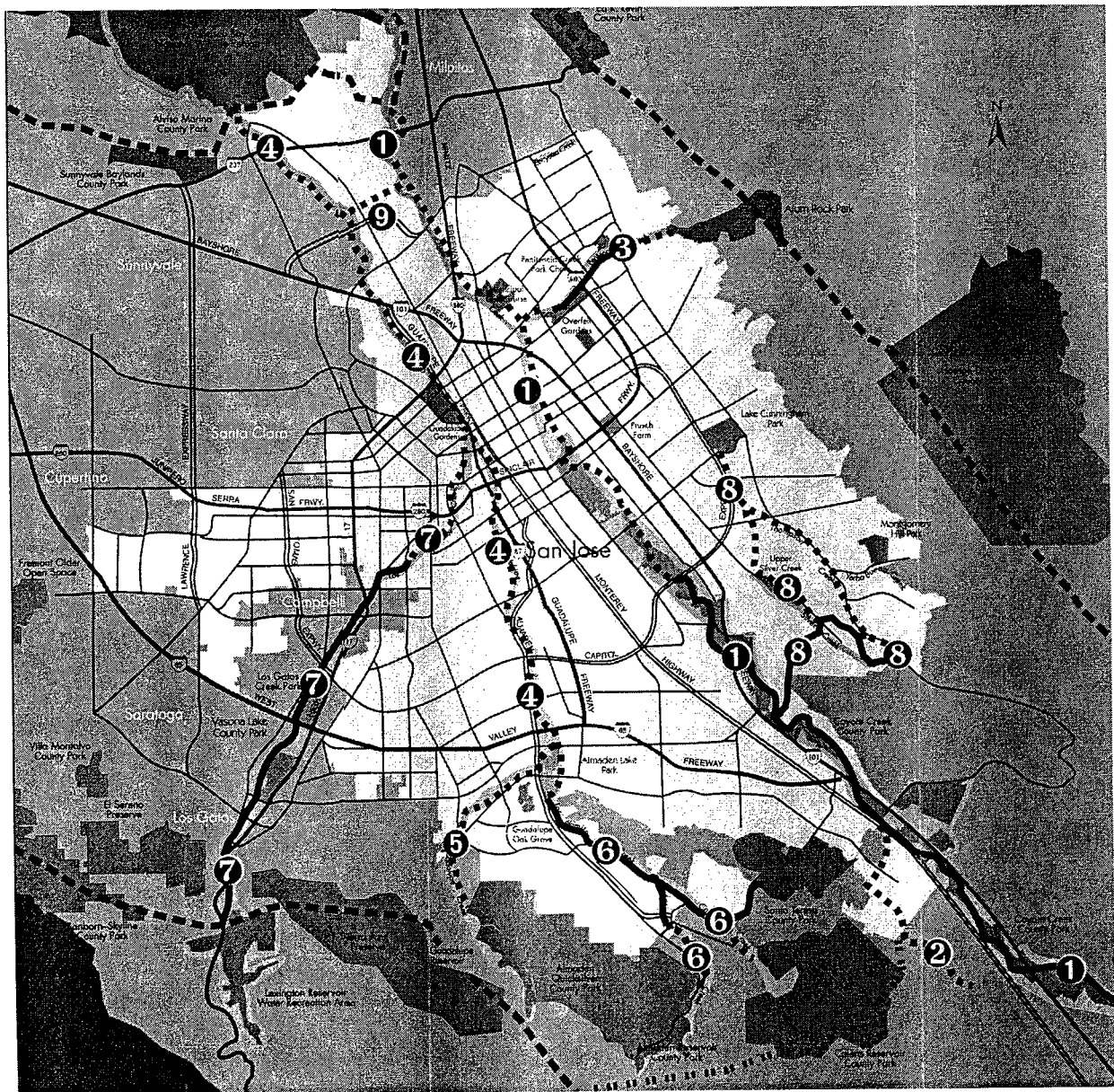
**Access, Parking & Circulation.** All of the bridges must be designed to allow for the free flow of water at the spillways and some of the bridges may need to accommodate District vehicles (18' wide, load limit H20). Development of pedestrian/bicycle bridges that can also accommodate District vehicles will be significantly more expensive than a bridge designed solely for recreational purposes. Determination of which, if any, bridges will need to be upgraded to accommodate vehicles will be determined during the development of construction documents.



North

# Land Ownership










# SAN JOSE AREA TRAILS

Coyote-Guadalupe Riparian Corridor,  
Trails and Greenways System

## TRAILS

1. Coyote Creek Trail
2. Fisher Creek Trail
3. Penitencia Creek Trail
4. Guadalupe River Trail
5. Guadalupe Creek Trail
6. Los Alamitos/ Calero Creek Trail
7. Los Gatos Creek Trail
8. Silver Creek/Thompson Creek Trail
9. Hetch Hetchy Corridor Trail

-  City of San Jose
-  Developed Trail
-  Undeveloped Trail
-  Bay Ridge Trail
-  Bay Trail



### III. Regulatory Requirements Permitting & Policies

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#### Upper Penitencia Creek

**Regulatory Requirements.** This riparian corridor is a significant biotic resource that offers a large expanse of shaded, riverine aquatic cover providing good avian and mammal habitat to several federally-listed species including steelhead, California red legged frog, and potentially, the Foothill yellow-legged frog, a State and Federal species of special concern. The park may also provide potential habitat for burrowing owl, a State species of special concern, and for nesting raptors, a locally unique resource. The park currently does not provide habitat for burrowing owl, a State species of special concern. The riparian trees may provide habitat for nesting raptors, a locally unique resource.

Therefore, any facility construction documents and construction activities for this park must employ techniques which will:

- Avoid disruption to special status species or biotic resources that support them. Special status species having specific protection requirements include: California red legged frog (US Fish and Wildlife Service), steelhead (National Marine Fisheries Service) and burrowing owl (California Department of Fish and Game). As the proposed project will require the removal of a small amount of riparian habitat for trail construction, a permit from CDFG will be required. The project does not propose to alter areas under the jurisdiction of the COE (Corps of Engineers), therefore a Section 404 permit is not anticipated. The percolation ponds are considered to be man-made, maintained structures that are not under jurisdiction of the COE.
- Time construction to protect wildlife species during nesting and breeding periods.
- Meet the riparian setback requirements of the City Riparian Policy.

**Permitting Requirements.** The proposed project does not propose work in areas subject to jurisdiction by the US Army Corps of Engineers (i.e., limits of ordinary high water). The City will be responsible for submitting a Stormwater Pollution Prevention Plan to the Regional Water Quality Control Board (RWQCB), and obtaining a 1601 Streambed Alteration Agreement from the California Department of Fish and Game.

#### Recharge Ponds

**Regulatory Requirements.** The Santa Clara Valley Water District (District) recharge ponds are a unique amenity. They provide opportunities for wildlife habitat and wildlife viewing and water-related uses. They also serve several water related functions including flood protection, water recharge, and potential emergency water supply. Each of these functions has specific design and regulatory requirements that must be approved by: RWQCB, CDFG, the County Department of Health Services and others. While recreational uses may be considered within and adjacent to the ponds, there are some recreation uses that will not be allowed to ensure the health and safety of park users and to adhere to regulatory and operational requirements of the recharge ponds. Prohibited uses include wading and swimming (people/dogs).

**Permitting Requirements.** The tri-party agreement signed on July 6, 1981, and amended and updated on February 3, 1987 and October 22, 1972 will need to be updated to



address current conditions and the specifics of the proposed project. The City will be required to obtain a Construction Permit from the District.

### **City of San José Riparian Corridor Policy (1999)**

Policy requirements. In addition to the Federal and State regulations dictating use and development within and adjacent to water bodies, the City of San José has developed a policy to identify, manage, and ultimately protect the riparian resources within its jurisdiction. To meet this objective, the Riparian Policy typically calls for development adjacent to riparian habitats to be set back 100 feet from the outside edge of the riparian habitat or top of bank, whichever is greater. Multi-use trails should be located a minimum of 10 feet from the riparian edge or top-of-bank where feasible, but may be located less than 10 feet from the edge if constrained by private property fence lines or other similar features. Passive uses such as sitting, picnicking and interpretive activities may also be located within the 100-foot riparian setback, subject to site specific design considerations, in consultation with a qualified biologist. All facilities adjacent to the riparian corridor should be designed to prevent storm water and irrigation runoff, and to prevent fertilizers and pesticides from draining into creek areas. This policy also calls for the protection of water quality and groundwater recharge, and to that end, Santa Clara Valley Water District requirements for their recharge ponds should be strictly followed.

Development Implications. Development within the context of this park master plan refers to parking lots, restrooms or any other structure over three feet in height (e.g. benches would be permitted). Trails and recreation facilities are permitted where an alternative site is limited or inappropriate, such as a fishing pier. However, if a trail is designated along a riparian corridor, the trail should be designed to drain away from the water. Landscaping within the riparian setback areas should be planted with native trees, shrubs and/or groundcovers and/or plants compatible with the particular adjacent riparian corridor classification.

### **On-street Connections.**

Policy requirements. Where the proposed Reach 2 trail links with the existing Reach 3 trail and the existing bikeway system, it crosses Piedmont Road. At this point, the trail will need to conform with California Department of Transportation (Caltrans) standards.

Development Implications. At a minimum, the trail crossing design features should consider: advance trail crossing warning signs for the roadway approaches (e.g. stop signs/roadway crossing ahead warning signs for the trail approaches), and guardrails and centerline striping within the bridge crossing zones. The existing transverse crosswalk pavement markings, curb cuts and bike lane striping will need to be retained or enhanced. Crosswalk enhancements may include additional street lighting, a raised crosswalk and/or other traffic calming devices.

### **Construction Documents Plan Distribution and Review**

In addition to obtaining the necessary regulatory permits, the City will need to distribute plans and specifications to various City agencies, as well as the participants of the tri-party agreement prior to start of construction. The local reviewing agencies will include the District, the City Department of Transportation and the County of Santa Clara. The District will review and issue a District construction permit for any water-related improvements. The City Department of Transportation will review on-street connections and crossings. The County of Santa Clara will review improvements on County lands where they have jurisdiction and/or they will be contributing monies or park-related services.

## **IV. Proposed Park Amenities & Trail Facilities**

### **The Concept**

In keeping with the overall concept for the 1977 *Penitencia Creek Park Chain Master Plan*, the Master Plan for Reach 2 has been created with three zones or intensities of development and use.

Natural Zone- Riparian Creek Corridor. A natural zone of low intensity development is proposed adjacent to Penitencia Creek. Development will be limited to the trail and activities in this area will be focused on trail use.

Transition Zone-Recharge Ponds. A transition zone of ponds/riparian-associated habitat areas will be developed around the three percolation ponds. Development will be centered on water related improvements that provide an opportunity for the public to enjoy this unique amenity without entering the ponds (e.g. pathways, bridge crossings, and a pier that extends out over the water). Landscaping will be focused on extending and enhancing the quality of wildlife habitats and re-establishing a naturalized California landscape in this transition zone. A floating pier will be located at the northern edge of Pond 3 providing a connection between the water or “transition zone” and the “activity zone”.

Activity Zone. This area will be established furthest from the creek. It will incorporate the most intense level of development and serve the highest concentration of visitors. Developed facilities will include a restroom, picnic sites, an irrigated turf area for informal play, and parking.

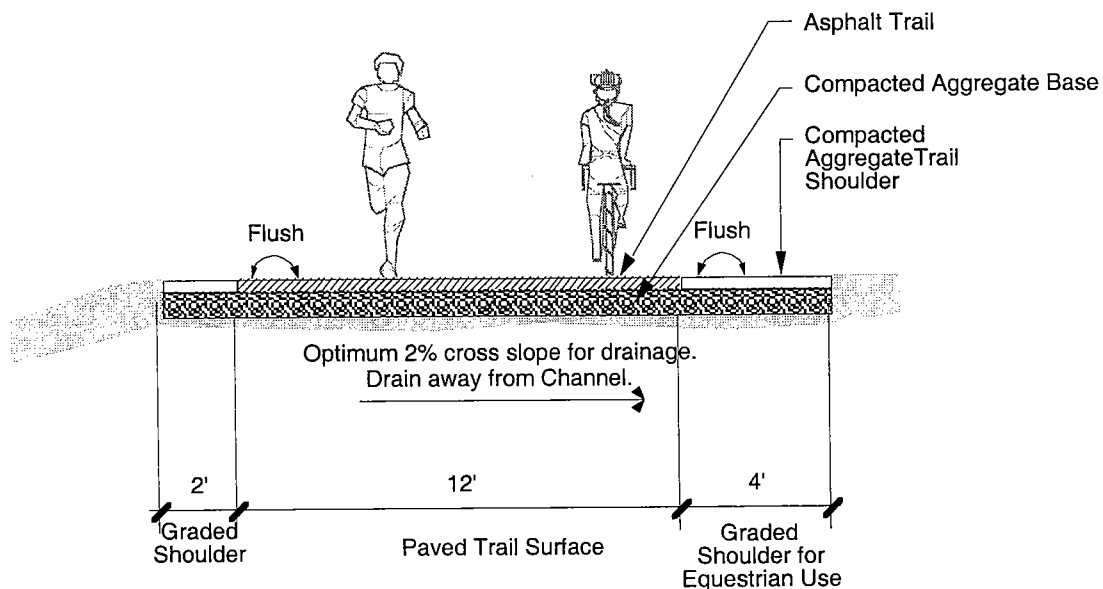
### **The Master Plan - Access & Circulation**

Vehicular Entry and Parking. The primary access into the park will be from Noble Avenue. There will be a paved parking lot that will accommodate approximately 30 cars. The parking area will be located where the Noble House is currently situated. Bike racks will also be provided in the entry area. In addition, the turf area, which will be located in the northwest corner of the park adjacent to the paved parking area, could be developed to serve as an overflow parking area for 150-200 cars during the annual Berryessa Arts and Wine Festival and other special community events. An entry gate will be installed so that the parking lot can be secured when the park is closed. A crosswalk will be provided across Noble Avenue at the intersection of Grossmont. This Noble Avenue crossing is an uncontrolled intersection.

Internal Circulation. A network of internal pathways will be designed to accommodate District vehicles. This may include the bridges that will be developed over each of the spillways. These bridges will be designed so as not to interfere with District maintenance activities and to allow for the free flow of water at the spillways. Determination of which, if any, bridges will need to be upgraded to accommodate vehicles will be resolved during the development of construction documents. Water District access will also be accommodated along Penitencia Creek.



The trails and pathways circulation system will be surfaced with a variety of materials appropriate to the intended uses. The Valley Floor Alternative of the regional Bay Area Ridge Trail will be designed with a 12-foot wide, striped, paved asphalt surface. It will have a 4-foot wide compacted base rock shoulder to accommodate equestrians on one side of the trail and a 2-foot wide compacted base rock shoulder on the other side for a total width of 18 feet. The trail providing access between the parking lot and the Valley Floor Alternative of the Bay Area Ridge Trail will also be designed as a paved, 12-foot wide trail with 6 feet of compacted shoulder to accommodate District vehicles. Equestrian use will not be encouraged outside of the regional trail. The perimeter trail around Pond 3 (which must accommodate District vehicles) will follow the existing 10-foot wide access way comprised of compacted aggregate base rock recently installed by the District. The pathways providing access to the picnic areas and circulating between Pond 1 and 2 will be 6 feet wide and will also have a surface consisting of compacted aggregate base material. Access around Pond 1 will be retained as a 10-foot wide compacted gravel surface.



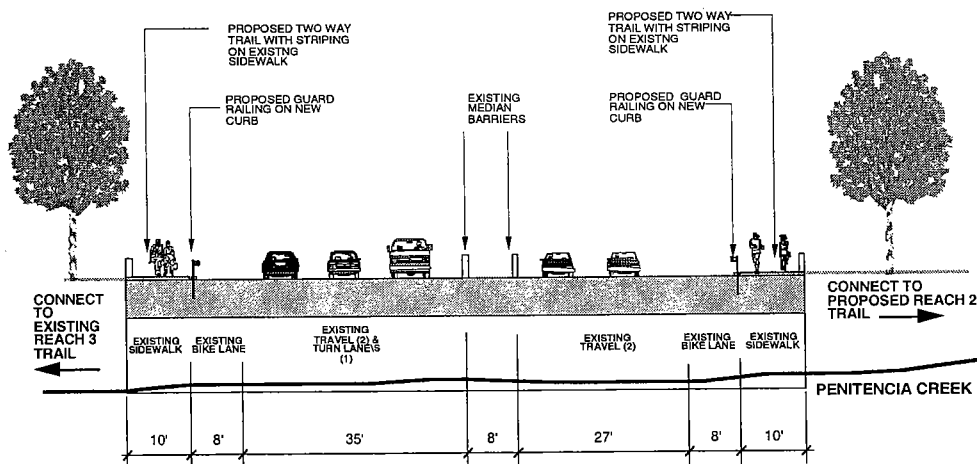
*Cross Section of Paved Multi-use Trail*

**Regional Trail Connections.** The Penitencia Creek Corridor extending from Coyote Creek eastward to Alum Rock Park serves as the Valley Floor Alternative of the regional Bay Area Ridge Trail, a portion of which will be incorporated into the design for Reach 2. (see *San Francisco Bay Area Ridge Trail Map*). This regional trail is also depicted on the *San José Area Trails Map* as the Penitencia Creek Trail (see *San José Area Trails Map*). The alignment shown in this Master Plan for Reach 2 of the Penitencia Creek Park Chain is consistent with these trails maps and with the 1977 *Penitencia Creek Park Chain Master Plan*.

Along this reach, the trail and staging designs will focus on accommodating hiking, bicycling, skating and dog walking (on-leash), environmental education and quiet, passive relaxation. This reach of the regional trail will include a rest area with benches,

an emergency call box, informal picnicking, and informal play (mown grasses, no developed picnic facilities) on the County parcel near the County staff residence. The regional trail will accommodate future equestrian use between Alum Rock Park and the Coyote Creek Trail.

Primary access from the parking lot will be from the trail that will run between Ponds 2 and 3. The trail will follow the existing District access along the southern perimeter of Pond 3. It will cross the spillway on a new bridge and connect to an existing portion of the Valley Floor Alternative of the Bay Area Ridge Trail at Piedmont Road. The connection to Reach 1 and Alum Rock Park east of the sediment pond will be completed when Reach 1 is developed.



### *Cross Section of Improvements at Piedmont Road for Multi-use Trail*

Where the trail crosses Piedmont Road, the crossing will include:

- Removable bollards at the trail entry to restrict unauthorized vehicular access.
- Directional signage to facilitate the transition from the Class I trail to the bike lanes along Piedmont Road.
- Improvements to promote safety and continuity along the regional, Class I trail. Such improvements could include railings at the face of the curb on the bridge per Caltrans standards, striping the sidewalk between the trail and the crosswalk, curb cuts, and signage directing trail traffic to the signalized intersection.
- Traffic calming features for crosswalks, such as additional street lighting at access points to the path, sight distance enhancements at access points such as tree and shrub trimming to provide maximum exposure of bicyclists and pedestrians waiting to cross, and raised crosswalks.

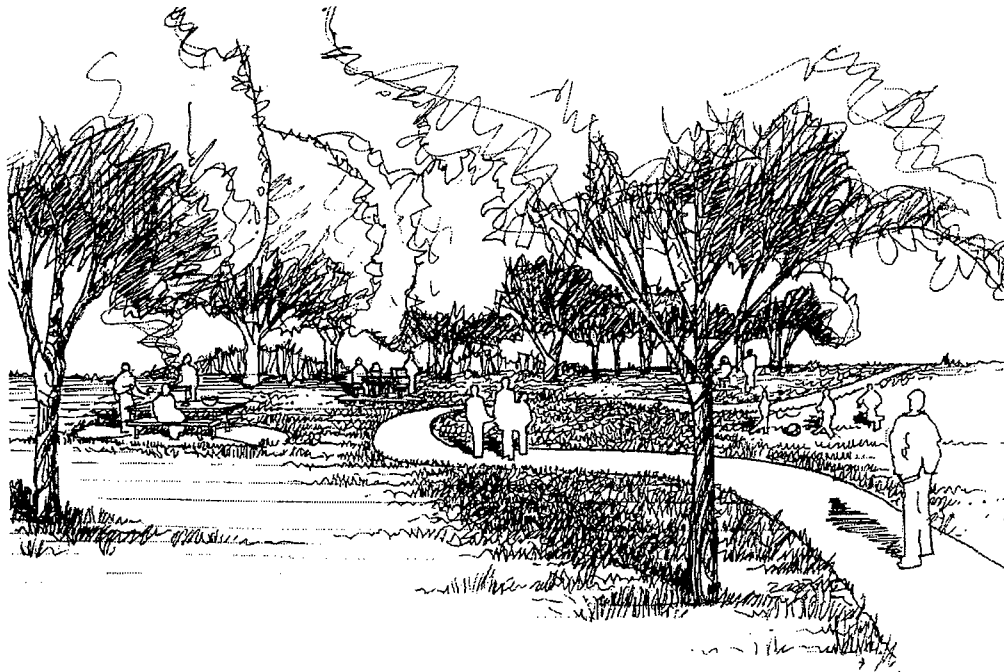
The Valley Floor Alternative of the Bay Area Ridge Trail, which extends from Piedmont Road across the spillway and then continues north between Ponds 2 and 3 to connect with the parking lot, will be completed as part of this Master Plan. This portion of the trail will be subject to modification as the Corps project evolves. The portion of the Valley Floor Alternative of the Bay Area Ridge Trail extending from Pond 1 to Noble

Avenue will be completed as part of the future flood protection project or as part of the development of Reach 1 of the Penitencia Creek Park Chain. Therefore, a specific trail design for the trail along the southern border of the sediment pond and the Noble Avenue crossing to the east was not developed as part of this master plan. Design and construction of this trail connection will be subject to a separate environmental review.

### **The Master Plan - Park Facilities**

Active areas will be oriented to the north side of the park near Noble Avenue where the primary access into the park will be located. This area is at the furthest distance from the creek and the naturalized habitat enhancement area that is to be provided around Pond 1. This park activity zone will provide opportunities for environmental education and other programs that may be coordinated with nearby schools, the library, and the City's Parks, Recreation and Neighborhood Services Department. An irrigated turf area for informal play will be located along the northwest boundary of the park. Picnicking will be located between Noble Avenue and Recharge Pond 3 and in the existing walnut grove on the northeast edge of the park. There will be two different picnic areas: one will be designed for use by individual families and one will be for organized groups. The picnic areas will include:

- A restroom with storage for maintenance equipment and supplies.
- Drinking fountain, bike parking and an emergency call box, which will be located near the parking lot entry.
- Barbecues.
- Concrete picnic tables.
- Trash receptacles.



*Sketch of Family Picnic Area*

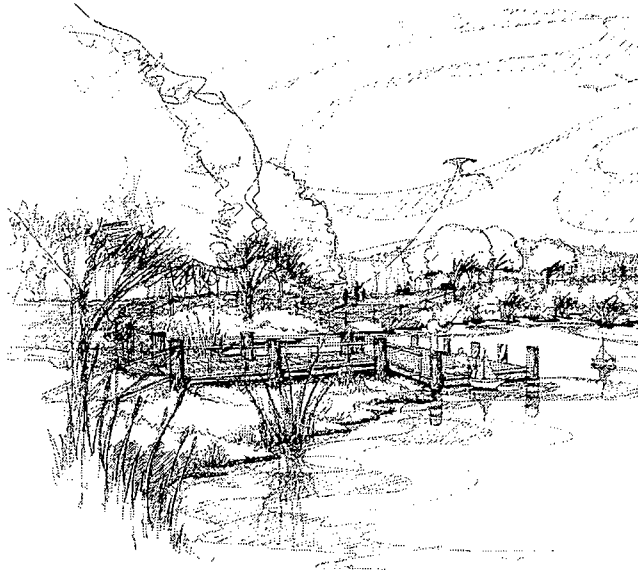
The three recharge ponds located on the site provide a unique amenity that will be integrated into the park design. Recreational uses of the recharge ponds will include:

- Wildlife Observation.
- Fishing.
- Model Boat Launching.

The park design will include the development of a floating pier along the northern edge of Pond 3. Observation areas will be provided from this pier, as well as from the two bridges that will cross the spillways between Ponds 1 and 2, and Ponds 2 and 3. Access will also be provided along the regional trail and the pathways that will provide passage around the ponds. The pier may also be used for fishing, though the ponds will not be stocked. Use of model boats will be limited to Pond 3 and the boats must be electric to minimize noise and the release of potentially hazardous emissions into the pond.

To protect the health and safety of park users, and to adhere to regulatory and operational requirements, the following recreation uses of the recharge ponds will not be allowed:

- Wading
- Swimming (people and dogs).



*Sketch of Proposed Floating Pier at Pond 3*

### **The Master Plan - Park Landscaping**

The landscape has been designed to reflect upon and enhance two features of the site: urban recreational park use and native habitat. The landscape plan identifies the existing riverine area and calls for its protection. The ground surface in the park is proposed to be developed to create informal play and public gathering areas and to enhance the wildlife habitat zones. This park landscape will be designed to leave the "middle plane" (3 to 10 feet above the ground) open to eliminate hiding places, provide open sight lines and create visible, welcoming entrances into the park. All of the plant

materials, with the exception of the irrigated turf area, will be selected in part because of their low water and maintenance requirements.

The *City of San José Riparian Policy (March 1999)* includes a list of suitable plant species for use in and adjacent to riparian corridors. This list is included as Appendix C of this master plan and it is recommended that this appendix be used as a guide during the implementation phase. Selection of specific landscape materials should be based on the design objectives described below.

Ground Plane. The ground surface in the park will be developed for play, public gatherings and habitat enhancement. This will be accomplished by creating a variety of ground plane patterns that will include paved areas, irrigated turf, mowed grasslands and naturalized ground surface areas comprised of native plant groupings, naturally occurring leaf mulch and open native soil.

The irrigated turf areas will be located on the northern boundary of the park, which is in the most developed area. It will parallel Noble Avenue extending from the parking lot towards the western boundary of the park. This area will be graded away from the ponds and any excess drainage will be picked up by the storm drainage system. The turf area will be seeded with a standard City grass seed mix typically used for City sports fields. This ground surface will allow for an informal play area and also accommodate parking for 150 to 200 vehicles during special events, such as the Berryessa Art and Wine Festival.

The mowed grassland areas will be comprised of those annual grasses that naturally occur on the site. They will be mowed twice a year, in the early and late spring to minimize fire hazards, but they will not be irrigated.

The third landscape surface will be comprised of a mix of naturally occurring leaf mulch, open native soil and low ground covers selected because they will naturalize on the site without invading the native habitat.

In addition, a variety of paving materials will be used to provide access to and through the park. Paving materials will include: asphalt for the parking area, regional trail and regional trail connections; compacted aggregate base on the pathways; decomposed granite in the picnic areas, and, potentially, enhanced paving at the entry.

Trees. A variety of canopy, columnar, and accent trees will be used in the park design to define spaces, provide respite from the summer sun, frame views of the mountains to the east, provide a buffer along the residential perimeter of the park and enhance the habitat value of the site.

Wildlife Enhancements. The landscape design will be focused on developing, and where existing, enhancing the native riparian habitat. The wildlife habitat landscape concept will be focused along Penitencia Creek and the naturalized area around Pond 1. In addition, clusters of native plantings will be installed throughout the park, including areas around the ponds.

Irrigation. The irrigation design will provide a system for establishing and maintaining the plants. For much of the park, the irrigation system will be a low volume spray system and will only be used until the plants have become established (3 years maximum). Only in the turf area will an automatic, long-term, spray irrigation system be installed.

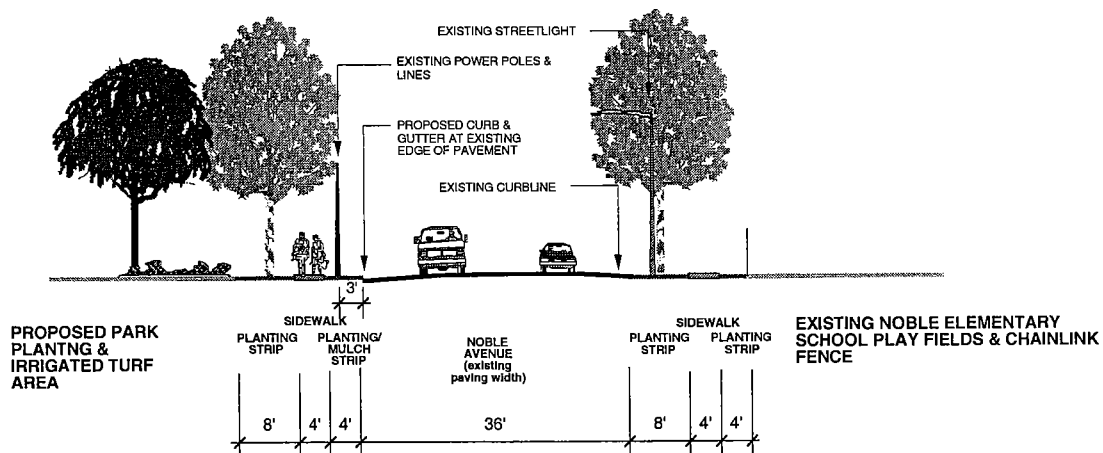
## The Master Plan - Security Lighting

Night lighting will be incorporated into the parking lot to facilitate patrol of the park and limit undesirable activity at night. In keeping with the intended uses of the site, the focus will be on using low pressure sodium light standards that will maximize security without impacting the native habitat zones or the adjacent residential properties. All of the light fixtures will be designed to be vandal resistant.

## The Master Plan - Perimeter Treatments

A new sidewalk will be developed on Noble Avenue along the park perimeter. Street trees will be incorporated into the design of the north perimeter sidewalk improvements. On-street, parallel parking will be available along Noble Avenue once the street improvements have been made (e.g. street lights, tree plantings, sidewalk, curb and gutter, refinement of the existing asphalt edge to meet the new curb and gutter). A new crosswalk will be included in the entry improvements. The crosswalk will be aligned with Grossmont Drive and connect to the sidewalk that will be developed around the parking lot. The crosswalk design will incorporate traffic calming features such as additional street lighting and raised crosswalks, as appropriate. The existing chainlink fence along the perimeter will be removed. These improvements will facilitate access into the park and visually extend the park to the street.

A combination of 36-inch to 42-inch high, open wood rail fencing and groupings of native planting will be developed around the ponds. Fenced areas will be oriented towards those activity areas where there is the highest potential for people (especially children) to access the ponds. Landscaped edges will be designed for those areas where the potential for public access is less and the potential for wildlife enhancement is the highest (e.g. Pond 1).



*Cross Section of Proposed Improvements at Noble Avenue*

Landscape buffer areas will be designed to enhance views from the park and improve the security/privacy along the back of residential properties on the west and east park perimeters.

The existing residential fencing will not be disturbed. The perimeter fencing along District canal between Pond 3 and Piedmont Road will be removed. A security fence will be added adjacent to the sediment pond and along the creek extending east from the sediment basin to Noble Avenue until the future flood protection improvements are constructed or Reach 1 of the Park Chain is developed (depending on which comes first).

### **The Master Plan - Interpretive Exhibits and Signage**

One of the overall goals of this park is to recognize and enhance the wildlife habitat. Therefore, it would be appropriate to develop interpretive exhibits that celebrate the water and the steelhead trout that pass through the park, as well as the native California landscape that forms a part of this park landscape.

Whether at the entry, or in association with the pond, interpretive exhibits that are fully integrated into the park design will give the park a unique image. Incorporating interpretive exhibits in this manner may also aid in building the community's sense of involvement and ownership with the project.

As these interpretive exhibits are developed, the City should include representatives from the County of Santa Clara and the Santa Clara Valley Water District in the review of the design and coordination of placement of the exhibits.

In addition to the interpretive exhibits, the park signage will include an entry sign at Noble Avenue, identity signs at trail connections, mileage markers along the regional trail and management and safety signs as needed.

### **Coordinating with Future Flood Protection Improvements**

The US Army Corps of Engineers, under the sponsorship of the Santa Clara Valley Water District, is currently developing preliminary studies for flood protection improvements for this reach of Penitencia Creek. This flood protection project could impact the trails proposed in the master plan. The City, the District, the US Army Corps of Engineers and the community have recognized the importance of regional trail continuity.

The preliminary Corps studies indicate that the Valley Floor Alternative of the Bay Area Ridge Trail will be incorporated into their flood protection program. However, as future implementation of the flood improvements will not take place for over a decade, the master plan recommends that the regional trail be completed between Piedmont Road and Pond 2, recognizing that this trail may need to be modified or rebuilt in the future.

The regional trail between Pond 2 and Noble Avenue should be developed when Reach 1 of the Penitencia Creek Park Chain is developed and/or when the sediment basin is reconfigured to accommodate adequate width for the trail and the flood protection improvements are implemented.

The community also asked the City to consider a pedestrian road crossing and access into the park from the south across Penitencia Creek Road at Toyon Road. They felt a crossing at this location would allow elementary school children to use the park as part

of their school programs, and it would also provide safer access for school children that live south of the park, but attend school north of the park. This crossing was considered in the *Penitencia Creek Reach 2 Park Master Plan Feasibility Report* and in the Initial Study for the project. Due to the uncertainty of the final design for flood protection improvements for this reach of Penitencia Creek and the potentially significant environmental impacts associated with developing this crossing, a new bridge across Penitencia Creek was not incorporated into the master plan. A bridge may be feasible in the future after implementation of the US Army Corps of Engineers flood protection project, wherein the park could provide a pedestrian connection to Toyon School. Design and construction of such a bridge would be subject to a separate study and environmental review.

The City will need to continue to coordinate with the District, the US Army Corps of Engineers and City Departments as alternatives for the flood protection program for Reach 2 are considered and a final design is developed. The focus of the City's dialogue with these agencies will be to ensure that the future flood protection program for Reach 2 incorporates the Valley Floor Alternative of the Bay Area Ridge Trail and considers the feasibility of developing pedestrian park access from the south across Penitencia Creek Road.



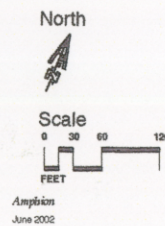


# Master Plan

## Penitencia Creek Reach 2 Master Plan

Approved by the City of San José Parks & Recreation Commission - May 1, 2002

Approved by the City of San José Council - June 4, 2002







## **V. Proposed Construction Costs**

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### **Projected Construction Costs**

The design and construction costs for completing the Penitencia Creek Park Reach 2 are estimated to be \$3,715,000. The table on the following page provides an overall cost, as well as itemized cost estimates for each park component.

### **Estimating Park Construction Costs**

Budget estimates are based on the conceptual design solutions provided in the design guidelines and the current costs of construction. Materials selected for calculating the budget estimates are standard materials that fulfill the functional requirements of the design. If custom materials are selected during the design development phase, then these selections may alter the estimated cost of construction. Budget estimates were determined by calculating estimated quantities and then applying unit costs to these quantities.

This estimate is preliminary and for planning purposes only. This estimate will be subject to change as a result of: 1) fluctuations in the construction industry in terms of labor availability and labor rates, 2) review and refinement of the design when construction drawings and specifications are prepared; 3) mitigation requirements, which are specifically defined when environmental permits are secured.

### **Phasing Implementation of the Master Plan**

It is anticipated that implementation of all of the components of the Penitencia Creek Park Reach 2 Master Plan will take place over a period of time depending on the monies available in the City of San José's capital budget and the ability of the City to secure supplemental funding from other sources to augment the budget. Additionally, it may be desirable to phase some elements of the plan until new locations can be provided to accommodate the current activities (e.g. the Noble House). Taking the fiscal limitations and the community's preferences into consideration, the following priorities have been provided to guide the future development of this park.

Community Priorities. At the two community meetings, the public participants ranked trail development as one of their highest priorities. They wanted to see, as the highest priority, the extension of the Bay Area Trail, extending from Piedmont Road to the main entry of the park off Noble Avenue, and as a second priority, the development of an internal circulation system oriented to pedestrian activities. Also high in priority was enhancement of the site to create a "park like" atmosphere through landscaping, with an emphasis on the use of native plants appropriate to the area. Lowest on the list of priorities was the demolition of the Noble House and the redevelopment of this lot to accommodate on-site parking. Several people indicated that they did not want to see this house removed until a new location was identified for the current activities, which primarily consist of local community meetings.

Phase I Implementation. Based on community input, Phase I Implementation will be focused on the development of the regional Bay Area Ridge Trail, which will incorporate the following design components:

- ❖ 12 – foot wide asphalt, multi-use trail with removable bollards at the Piedmont Road trail entry and a call box along the trail route
- ❖ A bridge over the spillway
- ❖ A bridge between Ponds 2 and 3
- ❖ Tree pruning to improve the visual appeal of the park and to improve site security
- ❖ Planting riparian plants to mitigate any impacts to the riparian corridor resulting from the development of this trail

Phase II Implementation. This phase will be focused on landscape improvements to create a “park like” atmosphere. Landscape improvements will include:

- ❖ Landscaping along the Noble Avenue perimeter
- ❖ Development of an informal, irrigated turf area
- ❖ New tree planting
- ❖ An internal, 6-foot wide compacted aggregate, pedestrian-oriented trail system including a new bridge between Ponds 1 and 2
- ❖ Management and safety signage

Phase III Implementation. This phase will be focused on the development of the picnic areas and installation of site furniture. It is anticipated that this phase will include the development of the following components:

- ❖ Family/individual picnic areas with barbecue grills
- ❖ Group picnic area with barbecue grills
- ❖ Restroom
- ❖ Entry and interpretive signage
- ❖ Benches along the trail
- ❖ Additional landscaping including new trees and groundcovers

Phase IV Implementation. This will be the final phase. It is anticipated that this phase will include the development of the following components:

- ❖ Water-related amenities – floating pier, safety rails and fencing, as appropriate
- ❖ Demolition of the Noble House
- ❖ Installation of the parking lot, including security lighting, crosswalks, storm drain connections, bike racks and entry gates
- ❖ Curb gutter, and lighting improvements along on Noble Avenue

## Penitencia Creek Reach 2 Master Plan

Program Element	Quantity	Unit	Unit Cost	Subtotals	Subtotal by area
<b>Noble Ave</b>					
Concrete curb and gutter	795	lf	\$35.00	\$27,825	
Street Lights	2	ea	\$8,000	\$16,000	
Hooded Inlets	1	allow	\$1,500.00	\$1,500	
Storm Drainage/ Drop Inlets	1	allow	\$7,500.00	\$7,500	\$52,825
<b>Noble Ave Perimeter</b>					
Concrete sidewalk	3,660	sf	\$8.00	\$29,280	
Remove existing chain link fence (salvage)	610	lf	\$2.25	\$1,373	
Street Trees (24" box)	16	ea	\$300	\$4,800	\$35,453
<b>Parking Lot</b>					
Asphalt Paving	10,800	sf	\$6.00	\$64,800	
Curb	460	lf	\$25.00	\$11,500	
New driveway curb cut/ concrete apron	480	sf	\$8.00	\$3,840	
Pedestrian handicap ramps at curb	2	ea	\$1,500	\$3,000	
Concrete sidewalk around parking lot	2,160	sf	\$8.00	\$17,280	
New crosswalk at entry	1	ea	\$1,500	\$1,500	
Parking lot storm drainage connections	1	allow.	\$10,000	\$10,000	
Bike rack	1	ea	\$1,000	\$1,000	
Trash receptacles	2	ea	\$1,000	\$2,000	
Security lighting	4	ea	\$6,000	\$24,000	
Call box at entry	1	ea	\$10,000	\$10,000	
Entry gate	1	allow	\$10,000	\$10,000	\$158,920
<b>Restroom</b>					
Prefab restroom (1 stall each + storage)	1	ea	\$100,000	\$100,000	
Drinking Fountain	1	allow.	\$3,000	\$3,000	
Utility Connections	1	allow.	\$70,000	\$70,000	
Concrete Paving around restroom	1,100	sf	\$8.00	\$8,800	\$181,800
<b>Informal Turf Area</b>					
Regrading for Drainage	86,600	sf	\$0.30	\$25,980	
Imported Topsoil (6" deep)	1,604	cu yd	\$40	\$64,148	
New Lawn -seed	86,600	sf	\$0.25	\$21,650	
Irrigation at lawn & street trees	86,600	sq ft	\$0.75	\$64,950	\$176,728
<b>Family/ Individual Picnic Area</b>					
Decomposed granite surfacing	160	sf	\$4.50	\$720	
Picnic tables	8	ea	\$1,500	\$12,000	
Trash receptacles	4	ea	\$1,000	\$4,000	
Barbecue Grills	8	ea	\$1,500	\$12,000	\$28,720
<b>Group Picnic Area</b>					
Decomposed granite surfacing	4,600	sf	\$4.50	\$20,700	
Picnic tables	10	ea	\$1,500	\$15,000	
Trash receptacles	3	ea	\$1,000	\$3,000	
Group Barbecue Grills	2	ea	\$2,500	\$5,000	\$43,700
<b>Water Related Amenities</b>					
Floating Pier	700	sf	\$85	\$59,500	
Split Rail Fence around Ponds	4,586	lf	\$25	\$114,650	
Safety fence at desiltation pond (chainlink)	250	lf	\$20	\$5,000	
Trash receptacles	2	ea	\$1,000	\$2,000	\$181,150
<b>Trails</b>					
Multi-use Trail 12' asphalt	1,955	lf	\$87.00	\$170,085	
Multi-use Trail compacted gravel (6' trail 4' shoulder)	1,984	lf	\$29.00	\$57,536	
Park Trails (6" compacted gravel)	1,176	lf	\$15.00	\$29,325	
Benches along trail	4	ea	\$1,200	\$4,800	
Call box along trail	1	ea	\$10,000	\$10,000	
Removable bollards at Piedmont trail entry	4	ea	\$800	\$3,200	\$274,946
<b>Improvements at Piedmont Road (both sides)</b>					
Trail striping	525	lf	\$1.90	\$998	
Safety rail on new 12" concrete curb	525	lf	\$50	\$26,250	\$27,248
<b>Bridges</b>					
Bridge between ponds 1 & 2	75	lf	\$2,000	\$150,000	
Bridge between ponds 2 & 3	75	lf	\$2,000	\$150,000	
Bridge over spillway	80	lf	\$2,000	\$160,000	\$460,000
<b>Maintenance Entrance</b>					
Access gate	1	allow	\$5,000	\$5,000	
Gravel Access road (10' wide)	241	lf	\$12.90	\$3,109	\$8,109
<b>Signage</b>					
Entrance Signage	1	ea	\$3,000	\$3,000	
Identity sign at trail connections	3	ea	\$1,000	\$3,000	
Interpretive signs	3	ea	\$2,500	\$7,500	
Mileage Markers	2	ea	\$1,000	\$2,000	
Management & Safety Signs	5	ea	\$1,000	\$5,000	\$20,500
<b>Park wide</b>					
Demolition/ Site Preparation	1	allow	\$10,000	\$10,000	
Mobilization	1	allow	\$120,000	\$120,000	
Temporary Work (detours, infrastructure, etc.)	1	allow	\$190,000	\$190,000	
Tree pruning	1	allow	\$5,000	\$5,000	
New Trees (24" box)	500	ea	\$300	\$150,000	
New Groundcovers (3 acres)	127,740	sf	\$1.25	\$159,675	
Riparian Revegetation	9,000	sf	\$1.25	\$11,250	
Low Volume Spray Irrigation at planting	15,000	sf	\$1.25	\$18,750	
Planting areas soil prep and mulch	15,000	sf	\$0.60	\$9,000	
Site clean-up (post construction)	1	allow	\$190,000	\$190,000	
Permits	1	allow	\$25,000	\$25,000	\$888,675
<b>Subtotal</b>				<b>\$2,538,774</b>	<b>\$2,538,774</b>
Demolition & Removal of Noble House*	1	allow	\$30,000	\$30,000	
Construction	1	allow	\$2,538,774	\$2,538,774	
Contingency (10%)	1	allow	\$253,877	\$253,877	
Design and Construction Management	1	allow	\$888,570	\$888,570	
				<b>\$3,711,221</b>	<b>\$3,711,221</b>

\* Assumes Noble House is not an historic building and that it does not contain lead paint or asbestos. It does assume compliance with the City of San Jose's green building demolition requirements.



## VI. SOURCES

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Jane Mark





# **Penitencia Creek Park Chain Reach 2 Park Master Plan Narrative Report**

**June 2002**

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## **Appendices**

Prepared for  
City of San José  
Parks, Recreation & Facilities Division  
Department of Public Works  
by  
*Amphion*

## **CONTENTS of APPENDICES**

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Appendix A - Penitencia Creek Reach 2 Park Master Plan Feasibility Report

Appendix B - Penitencia Creek Reach 2 Park Master Plan Alternatives

Appendix C – City of San José Riparian Corridor Policy Study “Appendix B  
Plant Species Suitable for Use in and adjacent to Riparian  
Corridors, City of San José”



Penitencia Creek Park Master Plan – Reach 2

**Appendix A**  
**Penitencia Creek Reach 2 Park Master Plan**  
**Feasibility Report**

March 2002

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Prepared for  
City of San José  
Department of Public Works  
by  
*Amphion*



## CONTENTS

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Background	1
Regional & Local Setting	
Consistency with Other Plans	
1977 Penitencia Creek Park Master Plan	
County Draft Master Plan for Reach 2	
Goals & Objectives	5
Goals	
Objectives	
Pathway Criteria	
Planting Criteria	
Planting Goals	
Opportunities & Constraints	8
Regional Context	
Riparian Corridor	
Regional Trail Connections	
Community Connections & Activities	
Flood Protection	
Immediately Adjacent Land Uses	
Residential Lands	
Facilities & Programs	
Penitencia Park Lands	
Recharge Ponds & Perimeter Levees	
Landscaping	
Access & Parking	
On-site Circulation	
Restrooms	
Cultural Resources	
Facilities & Programs	18
Active Areas	
Passive Areas	
Landscaping	
Internal Circulation	
Regional Trail Connections	
Sources	20



## **BACKGROUND**

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### **Regional & Local Setting**

The Penitencia Creek Parkchain is located in the northeasterly section of Santa Clara County, California near the southern end of the San Francisco Bay. The Parkchain extends from Alum Rock Park in the east to Coyote Creek at its western terminus. The watershed for Upper Penitencia Creek lies in and adjacent to the eastern part of San Jose and the unincorporated areas of Santa Clara County. It encompasses twenty-four square miles.

Penitencia Creek, a tributary of Coyote Creek, is one of the last creeks in the county to flow within its natural alignments. The creek cuts a well-defined channel as it drops out of the Diablo Foothills into Alum Rock Park and continues westerly through the valley floor. Typically the narrow band of water that forms Penitencia Creek is flanked by steep banks and lined with sycamores, alders, eucalyptus, oaks, willows and various native and non-native shrubs and grasses.

The United States Fish and Wildlife Service has mapped the Upper Penitencia Creek within the area defined as Reach 2 as a non-tidal, forested wetland dominated by trees and shrubs with a saturated, semi-permanent, seasonal water flow. Also included in the park site are three percolation ponds that are classified as non-tidal, open-water wetland. These percolation ponds are artificially flooded and have an exposed permanent water supply.

Penitencia Creek Park Reach 2 is a 26- acre park site totally under public ownership. Agencies with jurisdiction over the park site are the City of San José, the County of Santa Clara, the Santa Clara Valley Water District and the Berryessa Union School District. Development and implementation of this Master Plan will rely on the cooperation of these property owners and the local, regional, state and federal agencies that have jurisdiction over this parkland.

The potential created by the natural setting of Penitencia Creek, together with the availability of the existing public lands, forms the parameters for developing the Penitencia Creek Park Reach 2 Master Plan.

### **Consistency with Other Plans**

Creation of a Creekside Parkchain has been consistently proposed by various agencies throughout the County since 1935. The County Board of Supervisors in 1975 allocated 3.5 million dollars from a 1972 Charter Amendment for parkland acquisition for the purchase of creekside lands and hired a design consultant to develop a regional park master plan for Penitencia Creek.

#### **1977 Penitencia Creek Park Master Plan**

Royston Hanamoto Beck and Abbey prepared the Penitencia Creek Master Plan in cooperation with the Berryessa Community, the County of Santa Clara, the City of San Jose and the Santa Clara Valley Water District. The County Board of Supervisors adopted the plan in 1977. The primary function of this master plan is to serve as a guide for future



recreation improvements along Penitencia Creek and to provide a focus for developing joint use agreements for the public agencies that hold land along the creek. The overall park concept that came out of this public planning process is a plan for a regional creekside park chain that will include:

- ❖ 12 miles of trails as the principal recreation facility, using the creek as the spine of the linear park chain
- ❖ Protection and enhancement of the native California landscape with a focus on encouraging ecological studies and providing wildlife habitat
- ❖ Lakes that will provide for recreational uses , as well as aquifer recharge

The 1977 Master Plan divided the linear creek corridor and adjacent parklands into seven reaches. The area between Noble Avenue (east) and Piedmont Road was defined as Reach 2. The proposed improvements for this Reach included:

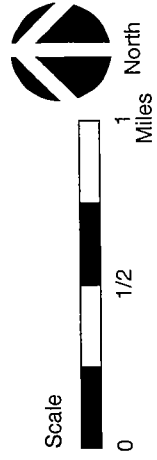
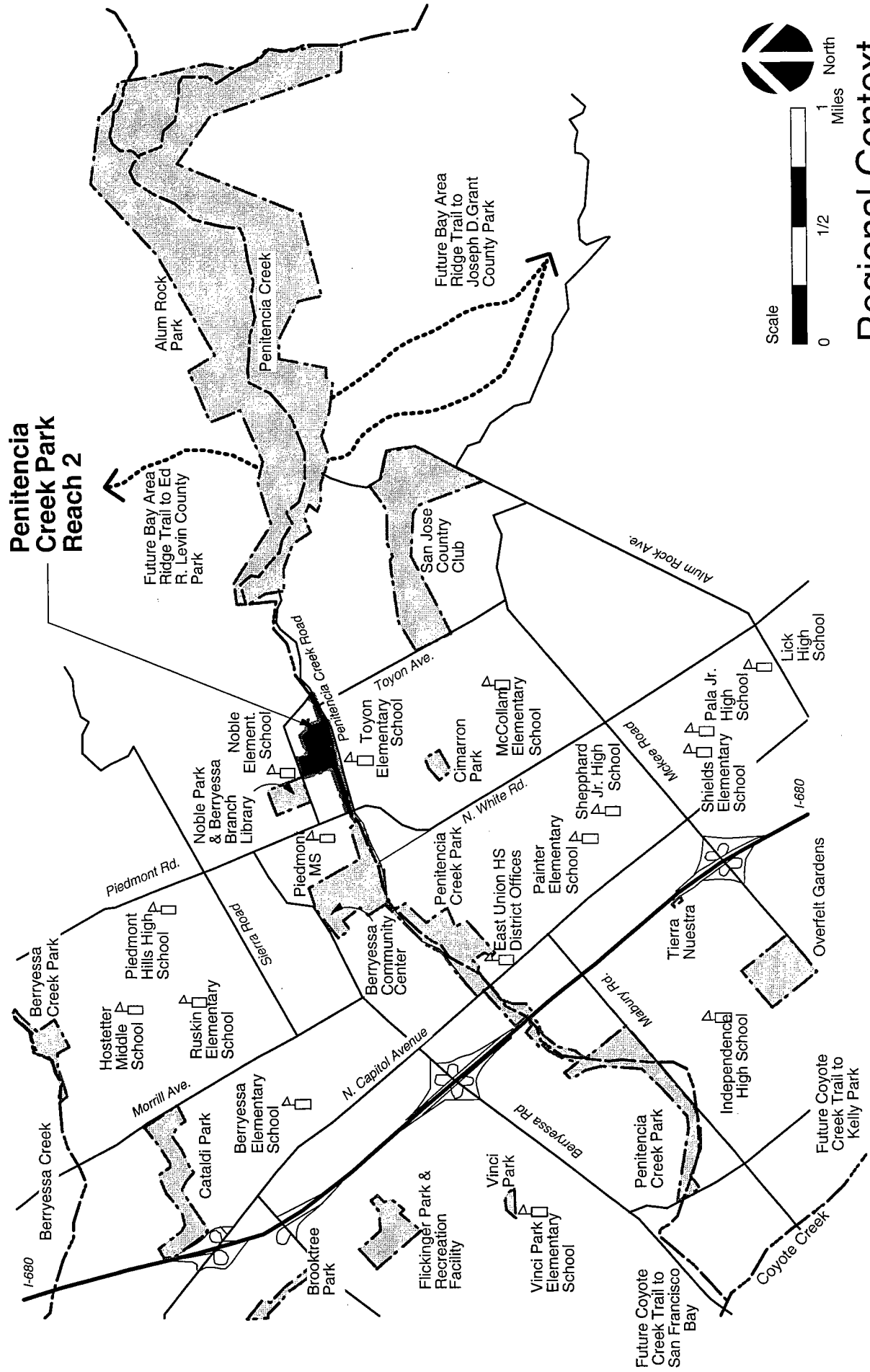
- ❖ Providing bicycle, equestrian and pedestrian creekside trails
- ❖ Reshaping the recharge ponds
- ❖ Enhancing the adjacent lands to create recreation and wildlife areas, while maintaining aquifer recharge opportunities

### **Late 1980s County Draft Master Plan for Penitencia Creek Park Reach 2**

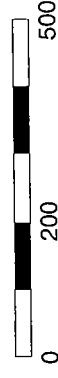
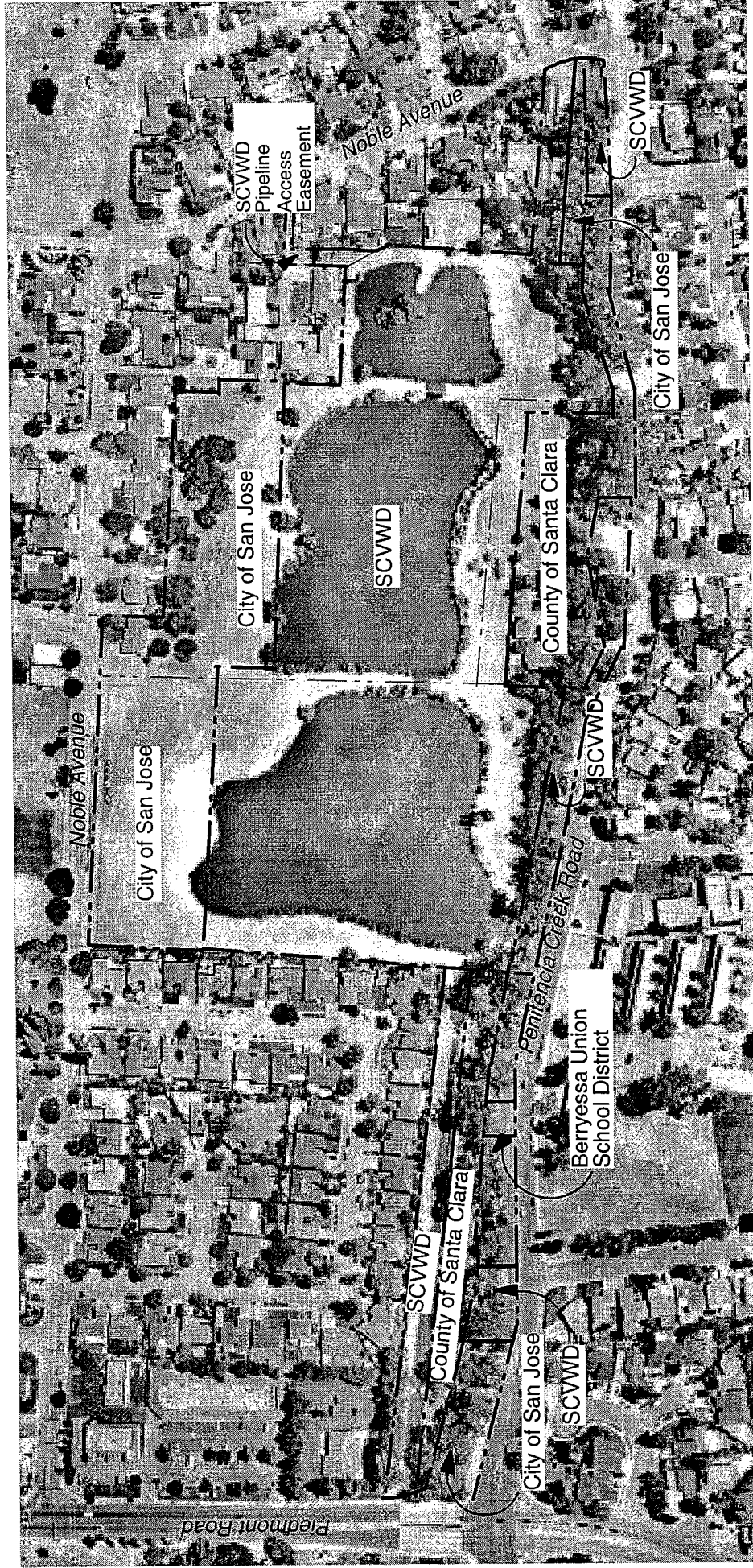
In the late 1980s the County of Santa Clara developed a preliminary Master Plan for Reach 2. This plan included the following recreation elements:

- ❖ A paved pedestrian/bike path and parallel equestrian trail forming part of the regional trail system along Penitencia Creek
- ❖ A pedestrian pathway system through the park with bridges spanning both spillways
- ❖ Turf areas for open, informal play
- ❖ A supervised shoreline area
- ❖ An informal picnic area
- ❖ Restroom
- ❖ Community Center
- ❖ Wildlife enhancement landscaping zones
- ❖ Buffer landscaping along the residential perimeter of the park
- ❖ Reconfiguration of the existing recharge ponds to create a more natural shoreline and to provide access into Pond 3

The preparation of this Master Plan for Penitencia Creek Park Reach 2 is following on the footsteps of these earlier planning documents. It also takes into account research conducted as part of the development of the San José-Santa Clara County-Santa Clara Valley Water District Land Use Agreements for the Penitencia Creek Parkchain, the 1995 Santa Clara Countywide Trails Master Plan and planning for the Bay Area Ridge Trail.



# Regional Context



North

# Land Ownership

## GOALS & OBJECTIVES

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### Goals

- ❖ To benefit the daily life-style of the users by providing a chance for city residents to be exposed to a natural setting in an urban environment.
- ❖ To have immediate accessibility to a regional park.
- ❖ To bring together the involved public agencies in a single purpose.

### Objectives

- ❖ To preserve and enhance the existing natural creek environment.
- ❖ To implement a portion of the regional Bay Area Ridge Trail extending from Coyote Creek to Alum Rock Park connecting existing public facilities and lands along the Penitencia Creek Parkchain.
- ❖ To create a trail system within the Reach 2 parklands that will provide a connection to the regional trail system and adjacent to public facilities. *(In some areas trail connectivity may be provided along and across city streets via sidewalks and bike lanes).*
- ❖ To create a landscape plan that will give the barren site a “naturalized character” and provide respite from the sun during the hot summer months.
- ❖ To give consideration to adjoining landowners on issues of privacy, security, viewshed and flood protection.
- ❖ To develop a City park that will be compatible with the Santa Clara Valley Water District flood protection and water supply objectives.
- ❖ To give consideration to the relationship between proposed park activities on the Reach 2 site and public events such as the annual Berryessa Arts and Wine Festival and to accommodate these public events as appropriate.

### Pathway Criteria

- ❖ To locate the regional, shared use trail close to the Creek to take advantage of the creekside amenities, trees, shade, water, views, etc. taking into account environmental considerations, California Environmental Quality Act (CEQA), the City riparian policy, etc.
- ❖ To create a safe crossing at roadway intersections and locate trails on the opposite side of the Creek where a road is adjacent to the creek.
- ❖ To provide convenient and safe public access to publicly-owned lands and facilities.

### Planting Criteria

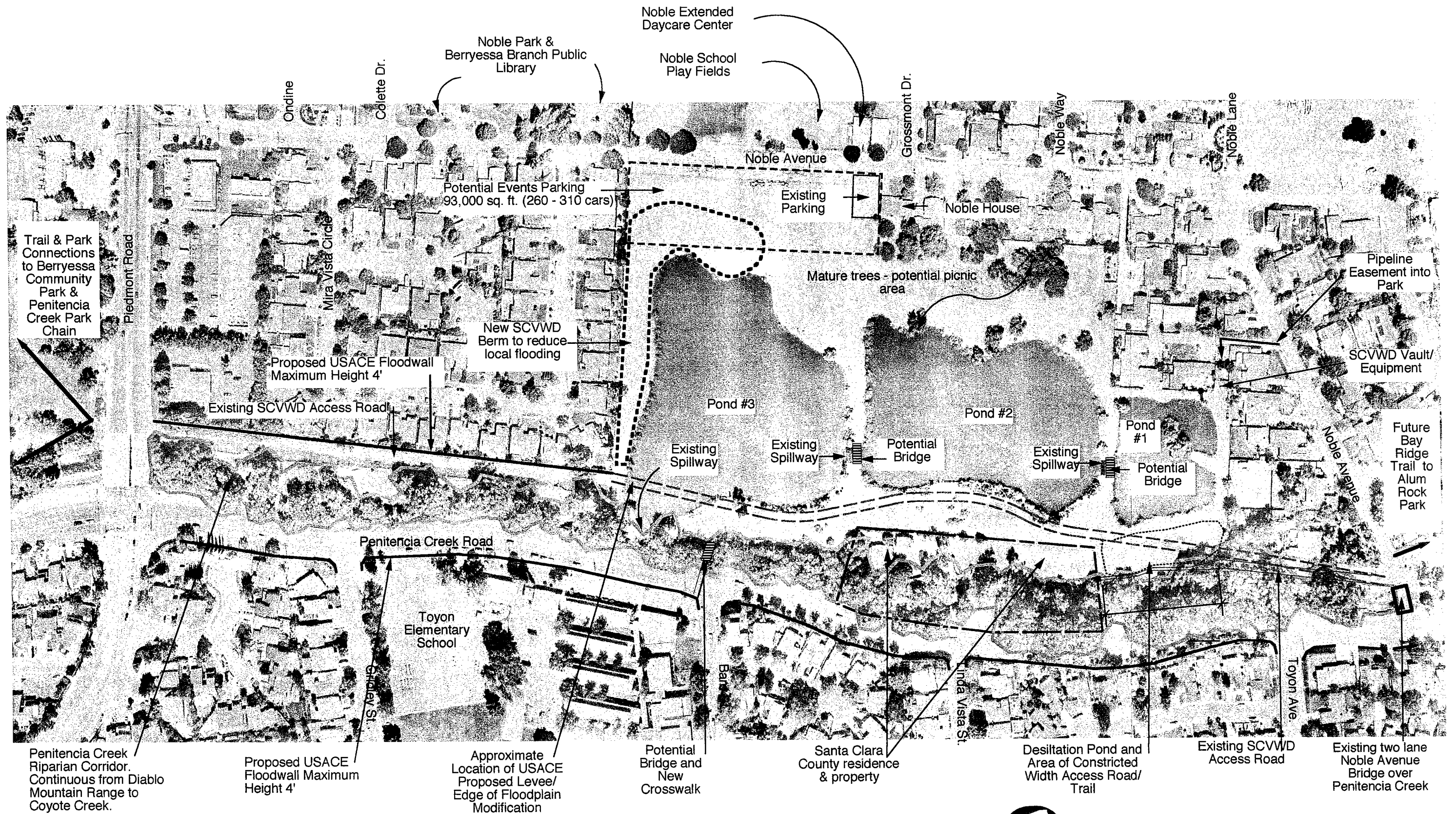
- ❖ Coordinate selection and maintenance of plant materials in the floodplain with the Santa Clara Valley Water District.
- ❖ Select plant materials indigenous to the valley floor with environmental and educational value.
- ❖ Install plant materials in naturalized masses of varying spacing.
- ❖ Develop a native California plant interpretive exhibit that can be used as an educational tool by the neighboring schools.

### Planting Goals

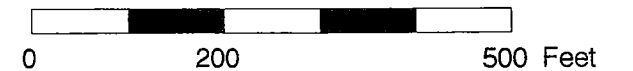
- ❖ Encourage active community involvement in landscape development.
- ❖ Retain and extend the riparian landscape to enhance wildlife habitats.

- ❖ Retain existing healthy fruit trees as an integral part of the planting concept to provide a link to the recent history of the Valley.
- ❖ Evaluate the environmental horticulture, and functional plant characteristics to determine the most desirable species for the varying conditions and specific uses
- ❖ Focus on developing the following within the City park site:
  - ❖ Overhead planting and structures to create shade for park users in the summer months.
  - ❖ A ground plane that can be used for play and public gatherings.
  - ❖ Leaving the “middle plane” (3 to 10 feet above the ground) open to eliminate hiding places, provide open sight lines and create visible, welcoming entrances into the park.





North



## Opportunities & Constraints

## OPPORTUNITIES & CONSTRAINTS

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### Regional Context

#### **Riparian Corridor**

The upper Penitencia Creek riparian corridor forms the southern boundary of the park and provides trail connections from Penitencia Creek Park Reach 2 to Piedmont Road on the west and Noble Avenue to east. This corridor is one of only two continuous riparian corridors extending between Coyote Creek and the Diablo Mountain Range. It is a significant biotic resource in that it:

- ❖ Offers a large expanse of shaded riverine aquatic cover providing good avian and mammal habitat.
- ❖ Serves as a steelhead stream course; steelhead (a federally-listed species) migrate through the lower reaches to spawn in the headwaters (Alum Rock Park).
- ❖ Is a known habitat for federally-listed California red legged frog; the frog may periodically occur in the lower reaches and is more common in the upper areas (Alum Rock Park).
- ❖ May provide potential habitat for southwestern pond turtle, a State species of special concern.
- ❖ May provide potential habitat for burrowing owl, a State species of special concern.
- ❖ May provide habitat for nesting raptors, a locally unique resource.

#### Opportunities

- ❖ This corridor provides opportunities to serve as an outdoor natural sciences classroom for programs relating to the study of native California plants and wildlife.
- ❖ The riverine corridor value for wildlife could be enhanced through the park master plan by improving continuity and quality of habitat.
- ❖ The aquatic resources of Upper Penitencia Creek could be enhanced by improving in-stream habitat features.

#### Constraints

Any facility designs, construction or recreation programs for this project must:

- ❖ Avoid disruption to special status species or biotic resources that support them. Special status species having specific protection requirements include California red legged frog (US Fish and Wildlife Service), steelhead (National Marine Fisheries Service), southwestern pond turtle (California Department of Fish and Game) and burrowing owl (California Department of Fish and Game). In addition, the US Army Corps of Engineers and the California Department of Fish and Game regulate facility improvements in riparian habitat including any streambed alterations.
- ❖ Be timed to protect wildlife species during nesting and breeding periods.
- ❖ Meet the riparian setback requirements of the City Riparian Policy.

## **Regional Trail Connections**

The Penitencia Creek Parkchain is a part of the Bay Area Ridge Trail, a trail system that follows the ridges and mountains that circle the San Francisco Bay and connects the nine Bay Area counties on or just below the principal ridgelines nearest the Bay. Within Santa Clara County, the Penitencia Creek Parkchain is proposed to provide a connection between the Coyote Creek Trail and Alum Rock Park. This trail is delineated on the Countywide Trails Master Plan and the San José Land Use Diagram. The Penitencia Creek Trail is to be a shared use trail accommodating hikers, bicyclists and equestrians. Completed portions of the Penitencia Creek Trail extend west of Piedmont Road along Penitencia Creek to Mabury/Jackson County Park. This section of the completed trail provides connections to Penitencia Creek County Park Reach 3, Berryessa Community Center, Piedmont Middle School, a Girl Scout meeting facility and other amenities.

### Opportunities

- ❖ Park development in Reach 2 creates the opportunity to complete another segment of the regional trail system thus extending the travel route that will eventually provide a connection to many local community and regional facilities including Alum Rock Park, local schools and the Berryessa Branch Public Library.

### Constraints

- ❖ The existing Piedmont Road Bridge that crosses over Penitencia Creek does not have adequate clearance above the creek banks to accommodate a trail undercrossing.
- ❖ There is a high volume of motorized traffic on Piedmont Road. To make a trail connection across Piedmont Road the trail will need to cross at the signalized Penitencia Creek Road/Piedmont Avenue intersection.
- ❖ The historic bridge on Noble Avenue that crosses over Penitencia Creek (east of park) is narrow and will not accommodate two lanes of vehicular traffic and a trail connection to the Toyon neighborhood to the southeast.
- ❖ A new mid-block crossing of Noble Avenue will be needed to provide a trail connection at the east end of park.

## **Community Relationships & Activities**

The Penitencia Creek Parkchain travels through the Berryessa Community of San José. This area is predominately residential with a variety of supporting facilities including schools, libraries, neighborhood parks, a fire station, library and small pockets of local retail businesses. Within a one-mile radius of Reach 2 of the Penitencia Creek Parkchain are the following facilities:

- ❖ *Noble Elementary School* and *Noble Extended Day Care Center* (10 acres) are located to the north across Noble Avenue. Recreation facilities include a playground, basketball court, and softball/soccer fields. The entrance is on Grossmont Drive. The fenced play fields back onto Noble Avenue (north).
- ❖ *Noble Park* and *Berryessa Branch Public Library* are located to the north across Noble Avenue. The park includes a small pond, informal turf area, and playground facilities. This park is used for large community festivals. Access is off Noble Avenue.
- ❖ *Toyon Elementary School* and *Toyon Partners' Child Development Day Care* (12 acres) are located to the south on Bard Street. Recreation facilities include a playground, basketball court, and softball/soccer fields.



- ❖ *Piedmont Middle School* (21.7 acres) is located north of Noble Avenue and west of Piedmont Road. Recreation facilities include: a playground (for older children) basketball courts, and softball/soccer fields.
- ❖ *Penitencia Creek Park* and *Berryessa Community Center* are located north of Noble Avenue and west of Piedmont Road. Recreation facilities include: a playground, basketball courts, softball/soccer fields, picnicking, informal turf areas, a small pond, a portion of the Penitencia Creek Parkchain Trail (Bay Area Ridge Trail). The Community Center is a full service center offering a wide variety of programs for the community including a SAGE program for elementary age children, after school sports and summer camp for middle school children and a senior citizens program. The Center also sponsors special events such as the Berryessa Arts and Wine Festival. Access and parking are provided off Penitencia Road and Berryessa Road.
- ❖ *Alum Rock Park* is located east of the Reach 2 park site. Recreation facilities include: hiking, bicycling and equestrian trails, a visitor center, group picnicking, the Youth Science Institute, and a tot lot.

### Opportunities

Because Reach 2 is located in a developed residential area, there is an existing network of potential education and recreation partners that may participate in, and benefit from, the development, programming and use of this park. They include:

- ❖ Parks Recreation and Neighborhood Services Department of San José
- ❖ Berryessa Union School District
- ❖ Berryessa Branch Library
- ❖ Santa Clara County Parks and Recreation

### Constraints

There is only one existing public access point into the park. The existing vehicular bridges that cross Penitencia Creek on Piedmont Road and Noble Avenue (east) and the volume of traffic on the roadway system form potential barriers to future neighborhood access and trail continuity. Conflict points include:

- ❖ Potential conflicts with pedestrian/motorized traffic conflicts on Noble Avenue (north) if recreation facilities occur on both sides of the street.
- ❖ New crossings may be needed on Noble Avenue at Mira Vista Circle and Grossmont Drive to provide connections to public library/Noble Park, Noble Elementary School and other destinations northward.
- ❖ A new connection maybe desired at across Penitencia Creek Road to provide a connection to Toyon Elementary School. To provide access into the park at this point will require a new bridge over Penitencia Creek and a new pedestrian crossing of Penitencia Creek Road. Providing access into the park at this location would trigger several significant environmental issues including impacts traffic, visitor safety, hydrology and biology including impacts to riparian habitat and potential impacts to endangered species.

### Other constraints include:

- ❖ Portions of Penitencia Creek Park Reach 2 currently accommodate overflow parking during special events in Noble Park. Development of this park may result in shortage of temporary parking opportunities during those events.

### **Flood Protection**

The US Army Corps of Engineers, with the Santa Clara Valley Water District, as the local sponsor, is planning to develop major flood protection improvements along Upper Penitencia Creek from Dorel Drive to the confluence with Coyote Creek to

address flooding within the watershed. The US Army Corps of Engineers is currently studying several flood protection alternatives including levee improvements, floodwalls and a by-pass channel (beginning at Capital Avenue). Between Noble Avenue and Piedmont Road, the flood protection facilities may include a combination of levees and flood walls. The US Army Corps of Engineers will incorporate the Penitencia Creek regional trail alignment (as depicted in the 1977 Penitencia Creek Parkchain Master Plan) into their design for the flood protection improvements for Reach 2.

The Corps is currently developing the “without project” condition. Following this phase, the Corps will proceed with an alternatives analysis. The District can speculate the types of flood protection facilities that will be designed and constructed, but it is too early in the planning process to definitively state what the Corps will construct.

#### Opportunity

- ❖ Implementation of the flood protection improvements will provide a connection to Noble Avenue (east) where it is now too narrow to develop a trail (near the desiltation ponds).
- ❖ The new levee design, if selected as the preferred flood protection solution, will provide a route across the southern side of Pond 3 where it is now constrained by a low flow spillway.

#### Constraints

- ❖ The new levee, if selected as the preferred flood protection solution, will be physically higher than the existing gradient of the existing District maintenance road. As such it would visually and physically divide the southern and northern parts of the park.

## **Immediately Adjacent Land Uses**

### **Residential Lands**

Single family residences are located on the east, north and west boundaries of the park. Back yard fencing forms the boundary between the residences and the park.

#### Opportunities

- ❖ The park provides the opportunity to extend local residences “visual open space”.
- ❖ Park facilities and programs will be readily accessible to local residences.

#### Constraints

- ❖ Due to the close proximity of these residences to the park, the Master Plan will need to address:
  - Security concerns of adjacent homeowners. Need for patrol and good visibility, especially along narrow creek trail and in northeast corner of park.
  - Light/ glare control from park lighting.
  - Noise from park activities.
  - Access. (Currently there are 3 gates along the perimeter fence providing access from adjacent residences.)
  - Design of boundary fences, which currently vary in style and condition.

- ❖ Construction of the new flood protection levee will allow more visual intrusion into adjacent residential properties, while restricting homeowners views outward.

### **Facilities and Programs**

There are currently neither formal park facilities on the site nor any programs that make use of the use of the site. The Noble House is located within the park along Noble Avenue on City property. Access to the house is off Noble Avenue (north). City staff use the house for meetings and community groups also hold meetings there.

A residential structure located on the north side of Penitencia Creek is on County property. Santa Clara County Park staff currently reside in this house. County Parks staff currently live in this residence and the County intends to retain this residence for staff housing under their ranger-in-residence program. Access to the house is provided from Penitencia Creek Road via an existing bridge that crosses Penitencia Creek. Northeast of the house is a large pasture area. This yard is currently used to pasture a horse.

### Opportunities

- ❖ The riparian corridor could provide trail connections from the Park to Piedmont Road on the west and Noble Avenue to the east.
- ❖ The riparian corridor provides opportunities for native riparian habitat restoration and environmental education.
- ❖ The Noble House provides opportunities to coordinate programs and uses. The orientation of the Noble House with a yard to the back of the house offers the potential to better incorporate the back yard of this facility with the park. Currently the facility is separated by chain link fence.
- ❖ The Santa Clara County Park staff residence provides County Staff presence in off-hours.
- ❖ The County Parks Department may consider other proposed uses for the pasture as park development alternatives are developed for the Master Plan.

### Constraints

- ❖ The riparian corridor is not pristine native California habitat. There is a large grove of eucalyptus trees that runs between Noble Avenue (east) and the western end of the recharge ponds. West of the recharge ponds the riparian habitat is mixed with non-native ornamentals and orchard trees.
- ❖ Facilities and programs associated with the riparian corridor must avoid further disruption to special status species or biotic resources that support them.
- ❖ Improvements that might be needed to upgrade the Noble House to current standards may not warrant retention of the structure.
- ❖ The Santa Clara County Park staff residence is located in the flowage easement and will require flood proofing or relocating as part of the flood protection project. Once the flood levee is completed, if selected as the preferred flood protection solution, the residence will be separated from the remainder of the park.
- ❖ The County Parks Department will not consider other uses for the parks residence.

## Penitencia Park Lands

### Recharge Ponds & Perimeter Levees

The Santa Clara Valley Water District (District) recharge ponds are a unique amenity. Their primary purpose is to serve several water related functions including flood protection, water recharge, and potential emergency water supply. Each of these functions has specific design and regulatory requirements that must be approved by: USACE, Regional Water Quality Control Review Board (RWQCB), California Dept. of Fish and Game (CDFG), and the County Department of Health Services and others.

In response to the approved 1977 Penitencia Creek Master Plan, the five original rectangular recharge ponds were reconfigured into their current formations. The two largest westerly ponds were combined into one irregularly shaped pond. The northern edge of this new pond was reshaped to provide a more curvilinear, natural edge to enhance its recreation value. The three easterly ponds were also altered to create a larger central pond and a smaller pond with more irregularly shaped boundaries along the easterly side of the park. However, the side slopes of these ponds have nearly vertical side slopes and the depth of the water at the edges is up to 7 feet to maximize the percolation capabilities of the ponds. As a result, some kind of physical deterrent (e.g. fencing/landscaping) may be required to minimize the potential risk from people entering the ponds. Perimeter fencing options may include "decorative" (e.g. wood railing, black vinyl chain link) ranging in height from 36" – 42".

Currently the recharge ponds provide opportunities for wildlife habitat and wildlife viewing and water-related uses. The ponds are also used for recreation in a number of informal ways (some accepted and some not by District). Current uses include model boat launching, fishing and dogs swimming.

Recently, the District constructed a berm at the west end of recharge ponds to prevent flooding of neighboring residences on Mira Vista Circle. In the highest areas, fill averages approximately 2.3 feet. In addition to the ponds and levees, there is a District mechanical equipment vault located in the northeast corner of site that is used as part of the District operations.

### Opportunities

- ❖ Santa Clara Valley Water District Recharge Ponds offer:
  - Wildlife habitat value (potential to reinforce with native plantings)
  - A visual water feature
- ❖ Permitted uses of the Recharge Ponds include:
  - Wildlife observation
  - Fishing
  - Model Boat Launching
- ❖ The southern edge of the ponds may be reconfigured when the US Army Corps of Engineers flood protection levee is constructed. This levee will be 18 feet wide with a load limit of H20 to accommodate District vehicles and will provide a connection to Noble Avenue. This levee design will accommodate the regional trail between Noble Avenue to the east and Piedmont Road to the west.

- ❖ If the proposed US Army Corps of Engineers flood protection levee is constructed, there is also an opportunity to reconfigure the southwest corner of Pond 3 to provide a better buffer between the park and the residences.
- ❖ The District has recently constructed a berm at the west end of the recharge ponds to prevent flooding of neighboring residences on Mira Vista Circle. This berm provides a potential opportunity to serve as a buffer between the private residences and the park.
- ❖ There is the potential to provide bridges across the spillway between Pond 1 and 2, and between Pond 2 and Pond 3. These bridges would provide connectivity between the two sides of the park and would provide a connection to the future Penitencia Creek Trail. All bridges may need to provide access for maintenance vehicles with H2O loading.

### Constraints

- ❖ Recreation uses that will not be permitted in order to protect the health and safety of park users and to adhere to regulatory and operational requirements of the recharge ponds include:
  - wading
  - swimming (people/dogs).
- ❖ There are safety issues related to ponds that will dictate some decisions relative to the design of the park. These include:
  - The steep, vertical side slopes and the depth of the water at the edges (up to 7 feet) of the recharge ponds create a potential entrapment hazard if someone falls into pond. This hazard will require some kind of physical deterrent (fencing/landscaping) to minimize the risk of people (especially small children) entering the ponds
  - The concrete spillways currently restrict access across ponds from north to south and must be bridged to provide access.
- ❖ Development of turf areas may be restricted adjacent to the ponds because fertilizers commonly used to enhance growth of turf could result in nutrient loading in the ponds.
- ❖ If the pond is reconfigured, it must maintain the current recharge capabilities which are calculated on both the wetted perimeter and the water surface area.
- ❖ Maintenance operations along the pond edges may limit the amount of recreation, as vehicle access must be maintained around the entire perimeter of the pond. Clusters of District approved vegetation will be acceptable.
- ❖ The location and steep sides of the desiltation pond located south of Pond 1 constrict the existing levee and inhibit the development of a trail connection to Noble Avenue (east). The existing fencing between the desiltation pond and Noble Avenue (east) is to remain in place until the new flood protection levee is constructed. When the levee is constructed, security measures (e.g. bollards/gates) will be needed to keep unauthorized vehicles from entering the park.
- ❖ The District will maintain the right to operate the ponds for the primary purpose of groundwater recharge.
- ❖ The District will not guarantee the supply of water in the ponds and reserves the right to drain the ponds at its discretion for cleaning or other operational purposes.
- ❖ Dogs swimming in the ponds are a health and safety, as well as a wildlife protection issue. Therefore, this is not a permitted use. However, due to the high numbers of people exercising their dogs at these ponds, this is a management issue that will have to be addressed.

- ❖ Mechanical equipment may need to be secured and screened. Access to these facilities must be maintained for District staff.
- ❖ The new berm at the west end of the recharge ponds limits a former view into the park site while providing greater views into adjacent residential backyards.
- ❖ Any drainage improvements needed for recreation purposes as a result of the construction of the levee will need to be incorporated into the park design. All surface water must drain away from the ponds.
- ❖ The new berm has been graded to feather out into the proposed park site. Reconfiguration of this site must not alter the flood protection functions of the levee.
- ❖ The levee limits the potential to develop a landscaped buffer between the residences and the ponds because District maintenance vehicle access may need to be maintained (18 feet wide). In addition, large trees are restricted from the pond edge/levee for structural reasons. However, the District will allow landscaping, including the planting of trees on the slope of the berm nearest the residences to allow for the development of a landscape buffer.

### **Landscaping**

With the exception of the Penitencia Creek Riparian Corridor, the overall park site is barren of any shrubs or groundcovers. The existing landscape within the City park site consists of a grove of existing mature trees along the northern and eastern boundaries of the park. This grove of trees includes:

- ❖ Grove of black walnut trees at north border (some trees are over mature).
- ❖ Individual specimen exotic trees: palms, Deodar cedar.

There is also a small of riparian habitat peninsula that extends into the northeastern edge of Pond 1.

Within the riparian creek corridor there is a variety of native riparian species, as well as a large grove of eucalyptus trees that runs between Noble Ave (east) and the western end of the recharge ponds. West of the recharge ponds, the riparian habitat is mixed with non-native ornamentals and orchard trees.

### **Opportunities**

- ❖ Landscaping may be incorporated around the perimeter of the ponds as long as public access is restricted by providing low fencing and District access is maintained for operational purposes.
- ❖ Best opportunities for landscaping are to cluster the pond landscaping at the top of the bank on the northeastern side of the park.

### **Constraints**

- ❖ Mature trees should be evaluated for wildlife use (e.g. nesting and foraging), and safety (e.g. structural hazard and in terms of hiding places).
- ❖ Open areas should be evaluated for burrowing owl habitat.
- ❖ Compacted soils may limit the potential for planting groundcovers and other vegetation on site.
- ❖ The recently graded area of engineered fill (new levee) may be too compacted to sustain growth.
- ❖ Plant material must not inhibit the recharge abilities of the ponds.
- ❖ Landscaping west of Pond 3, on the newly graded levee may have to adhere to the District policies on levee landscaping. Restrictions include: no trees which will impact the recharge capabilities of the pond or structural integrity

of the levee; vegetation must not hinder access by District maintenance vehicles.

- ❖ An 18-foot wide access road must be maintained on the new levee to accommodate District vehicles.

### **Access & Parking**

The existing parking lot has capacity of 8 to 10 cars. On-street parking is available along Noble Avenue. The main access into the park is from Noble Ave (north). There is a potential additional access point into the northeast corner of park from Noble Avenue. There is also a District maintenance access from Noble Ave. (east) near the bridge over Penitencia Creek and from Piedmont Road. Locked gates secure these routes. The Berryessa Arts and Wine Festival is held each year at Noble Park adjacent to the library. Currently, the Reach 2 park site is used for parking for this event.

#### Opportunities

- ❖ District equipment is located in the northeast corner of the park and could be secured in a fenced area if desired by the District.
- ❖ There is potentially 93,000 square feet of parkland that could be used for events parking for 260-310 cars.

#### Constraints

- ❖ Accommodating the full potential area for events parking would potentially restrict other uses.
- ❖ Parking areas must be drained away from the ponds so that car oils will not contaminant the water.
- ❖ If the Berryessa Arts and Wine Festival parking is displaced, an alternative parking area must be identified.
- ❖ The existing access point into the northeast corner of park from Noble Avenue is an easement, whose function is limited to SCVWD pipeline access. The access is situated so that it forms a small alcove between existing residences.

### **On-site Circulation**

The recharge ponds and spillways that provide a connection between the ponds divide the park site.

#### Opportunities

- ❖ Bridges could be developed over any of the spillways as long as the bottom of the bridge clears the top of the levees at the spillways. Additionally, the bridges may need to be wide enough to accommodate District vehicles (18' wide, load limit H20).
- ❖ Bridges over the spillways would provide an opportunity to view wildlife
- ❖ Bridges over the spillway would connect the two sides of the park and reduce safety hazards when people attempt to cross the spillways when water is flowing.

#### Constraints

- ❖ Use of the bridges may be limited to bicycles and hikers, as equestrian use could raise water quality issues.
- ❖ Bridges will require ramps up to the bridge, which will require placing large amounts of fill adjacent to the recharge ponds. Introduction of fill near the

recharge ponds will require RWQCB approvals and SWPP Best Management Practices for construction.

### **Restrooms**

There are no restrooms on-site.

### Opportunities

- ❖ Water and sewer connections are available within the Noble Avenue (north) corridor and at the Noble House.

### Constraints

- ❖ Health and safety requirements associated with the ponds' recharge functions will restrict siting of a restroom to the perimeter of the park near Noble Avenue (north).
- ❖ Siting the restrooms near the ponds will require approval by the RWQCB.
- ❖ Noble House was developed as a single-family residence with restroom facilities that are inadequate for public use.

### **Cultural Resources**

There are no known archaeological sensitive areas on site.



## **FACILITIES & PROGRAMS**

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Park activities can be grouped into compatible areas in conjunction with natural features and the on-site and surrounding land uses.

### **Active Areas**

- ❖ Active areas near Noble Avenue (north) provide the opportunity to link with the school and park to north.
- ❖ Land oriented facilities may include:
  - Parking
  - Picnicking – informal, family and small groups
  - Overflow parking for the Berryessa Arts and Wine Festival and other events
  - Restroom and Drinking Fountain
  - Emergency Call Boxes.
- ❖ Permitted uses of the recharge ponds may include:
  - Wildlife Observation
  - Fishing
  - Model Boat Launching.
- ❖ Recreation uses of the recharge ponds that will not be permitted due to health and safety considerations for park users and regulatory and operational requirements include:
  - Wading
  - Swimming (people and dogs).

### **Passive Areas**

- ❖ Passive areas can provide buffer between Park site and the Penitencia Creek Riparian Corridor.
- ❖ Percolation ponds will reinforce buffer areas and provide wildlife habitat with native vegetation enhancements.
- ❖ Landscape buffer areas along back of residential properties can enhance views of the park and privacy of residential properties.
- ❖ Passive activities that may be incorporated around the recharge ponds and along the creek corridor include:
  - Trail uses (hiking, equestrian, bicycling, skating)
  - A rest area with emergency call box, drinking fountain and bench
  - Wildlife Observation.

### **Landscaping**

- ❖ Focus will be on creating a naturalized landscaping oriented towards enhancing the native riparian habitat of the regional Penitencia Creek corridor.

### **Internal Circulation**

- ❖ Bridges could be developed over any of the spillways as long as the bottom of the bridge clears the top of the levees at the spillways. Additionally, the bridges may need to be wide enough to accommodate District vehicles (18' wide, load limit H20).
- ❖ All internal pathways may need to be designed to accommodate District vehicles (18' wide, load limit H20).

### **Regional Trail Connections**

- ❖ The proposed alignment for the Bay Area Ridge Trail follows the existing District service access, which is located between the creek and the south perimeter of the recharge ponds. This alignment could also be incorporated on the flood protection levee that the US Army Corps of Engineers is currently proposing for Reach 2 of Penitencia Creek in the general vicinity of the existing District service access. This general alignment would be consistent with the 1977 Penitencia Creek Parkchain Master Plan.

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**Appendix B**  
**Penitencia Creek Reach 2 Park Master Plan**  
**Alternatives**

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Prepared for  
City of San José  
Department of Public Works  
by  
*Amphion*



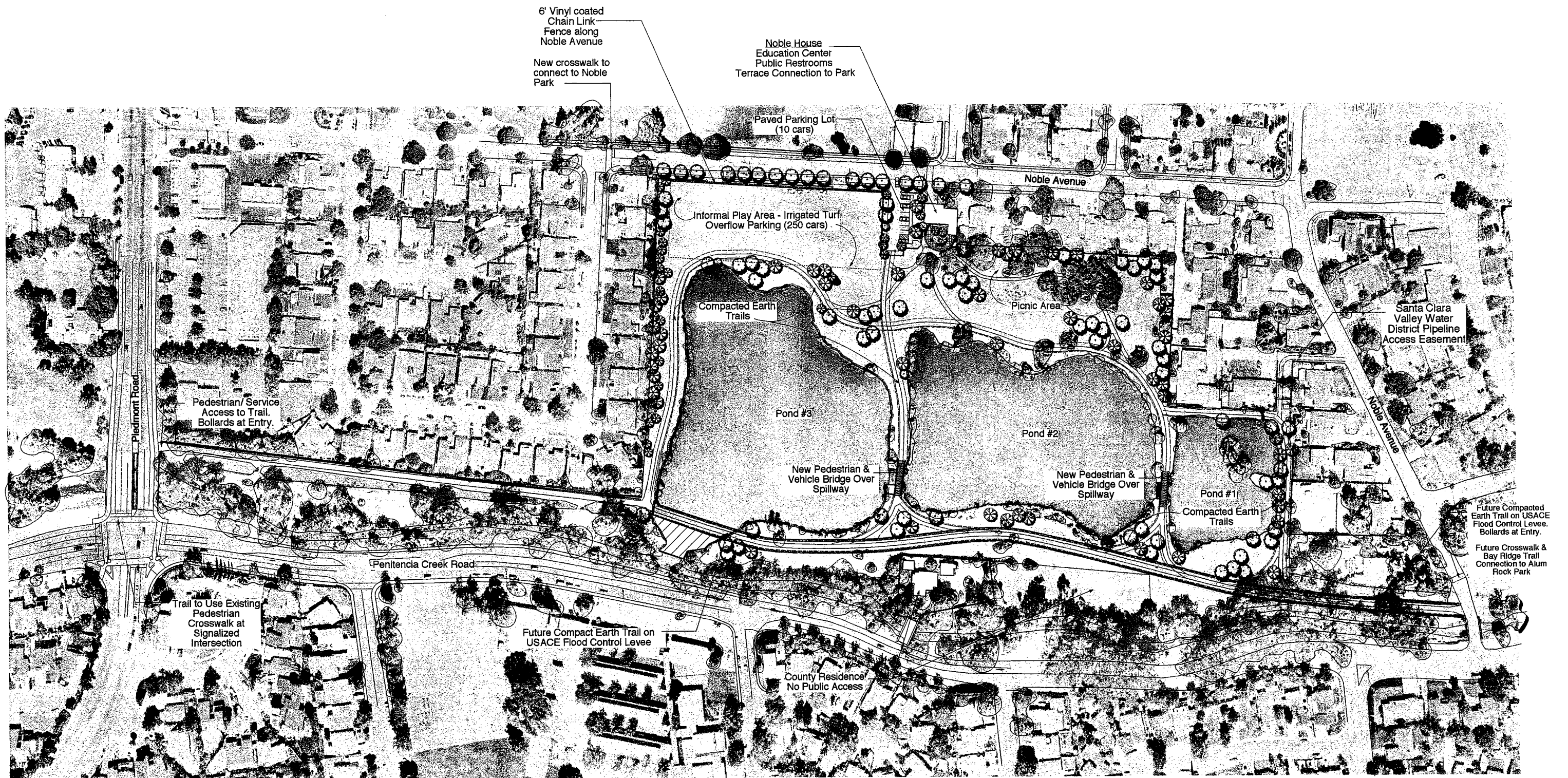
## Alternatives Program

<i>Program element</i>	<i>Alternative 1</i>	<i>Alternative 2</i>	<i>Alternative 3</i>
Development Focus	Maintains existing uses on the site and integrates external programs.	Increases level of development of active recreation.	Balances facility development with habitat enhancement.
Permanent Parking & overflow parking area.	Small paved permanent lot in existing location. (10 cars) Large turf overflow area for Arts & Wine Festival (250 cars) off Noble.	Medium paved permanent lot parallel to Noble Avenue. (30 cars). Moderate turf overflow area for Arts & Wine Festival (100 cars) off Noble.	Small paved permanent lot parallel to Noble Ave. (north) with horse trailer parking (10 cars). No overflow parking area on Noble Avenue.
Noble House	Integrate into park area as an education center with link to school programs.	Integrate yard into park area. Use house as ranger/ staff office.	Integrate yard into park / picnic area. Remove Noble House.
Picnic Area	In existing walnut grove on northeast edge of park.	New picnic grove near Noble Avenue and Pond 3, and in existing walnut grove on northeast edge of park.	In existing walnut grove on northeast edge of park and in County pasture.
Informal Play Area	Large irrigated turf area near Noble Ave (north) to accommodate overflow parking. Grade to drain to street.	Moderate sized irrigated turf area near Noble Ave (north).	No large fields. Informal play within picnic areas and in County pasture. No irrigated turf.
Restroom/ drinking fountain	Upgrade restrooms in Noble House.	New restroom near parking lot/ entry	New restroom near parking lot/ park entry on Noble Avenue (north).
County Parcel (Maintain residence for County use)	No public access.	Pasture area developed for informal picnic and informal play (mown grasses).	Pasture area integrated into park for formal picnic & mowed grasses informal play.
Perimeter treatments.	Vinyl coated chain link (6') along Noble Avenue. Buffer plantings along all residential edges. Maintain existing perimeter residential fences. Trails held away from fencelines.	Ornamental metal fence (6') along Noble Avenue. Retain/ enhance neighbors views and address security concerns by limiting buffer planting to clusters. Maintain existing perimeter residential fences.	No fencing along Noble Avenue Retain/ enhance neighbors views and address security concerns by limiting buffer planting to clusters. New uniform secure 6' tall solid wood fence along residential perimeter.

Wildlife enhancements	Clusters of native plantings throughout park to enhance wildlife value.	Flood plain and County pasture area enhanced with wildlife plantings. Cluster native plantings throughout park.	Focus enhancements for wildlife along Penitencia Creek and around Pond 1.
Fencing & plantings around ponds	36 - 42" vinyl chainlink fence around ponds. Moderate amount of clusters of plantings around ponds.	36 - 42" wood rail fencing around ponds. Add clusters of plantings around ponds.	No fencing around ponds. Reshape ponds for less steep sides. Restrict access on steep areas of ponds by plantings.
Park connections & bridges. Trails accommodate service vehicles 18' clear. Pathways 6' - 8'.	Compact earth park trail loops/ service vehicle access around all three ponds with 2 bridges over existing spillways. Pathways to picnic areas.	Gravel park trail loops/ service vehicle access around all three ponds with 2 bridges over existing spillways. Pathways to picnic areas.	Park trail loop/ service access around Pond 3 across 1 bridge between Ponds 2 and 3 to connect to regional trail. Trail connection to County pasture and Noble Avenue (north).
Regional Park Trail connections along Penitencia Creek	Compacted earth trail on future USACE levee.	Gravel trail on future USACE levee.	Paved trail with 1 shoulder that accommodates equestrian use on future USACE levee.
SCVWD access roads (maintenance and patrol vehicles only)	Compacted earth roads. Vehicle access around all three ponds from Nobel Avenue (east) along Penitencia Creek and flag lot access; Noble (north) at west edge; and Piedmont Road. Bollards restrict vehicle entrance.	Gravel Roads. Vehicle access around all three ponds from Nobel Avenue (east) along Penitencia Creek and flag lot access; Noble (north) at west edge; and Piedmont Road. Bollards restrict vehicle entrance.	Paved and compacted earth roads. Access around Ponds 2 and 3 from Nobel Avenue, along Penitencia Creek and from Piedmont Road. Access to Pond 1 along Penitencia Creek and flag access from Nobel Ave. (east). Bollards restrict vehicle entrance.
Water related recreation	No amenities or structures.	Fishing structure (pier) and model boat launch area at shore of Pond 3.	Model boat launch area at shore of pond 3.







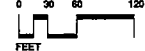
## Alternative 1

Penitencia Creek Reach 2 Master Plan

North



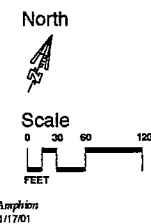
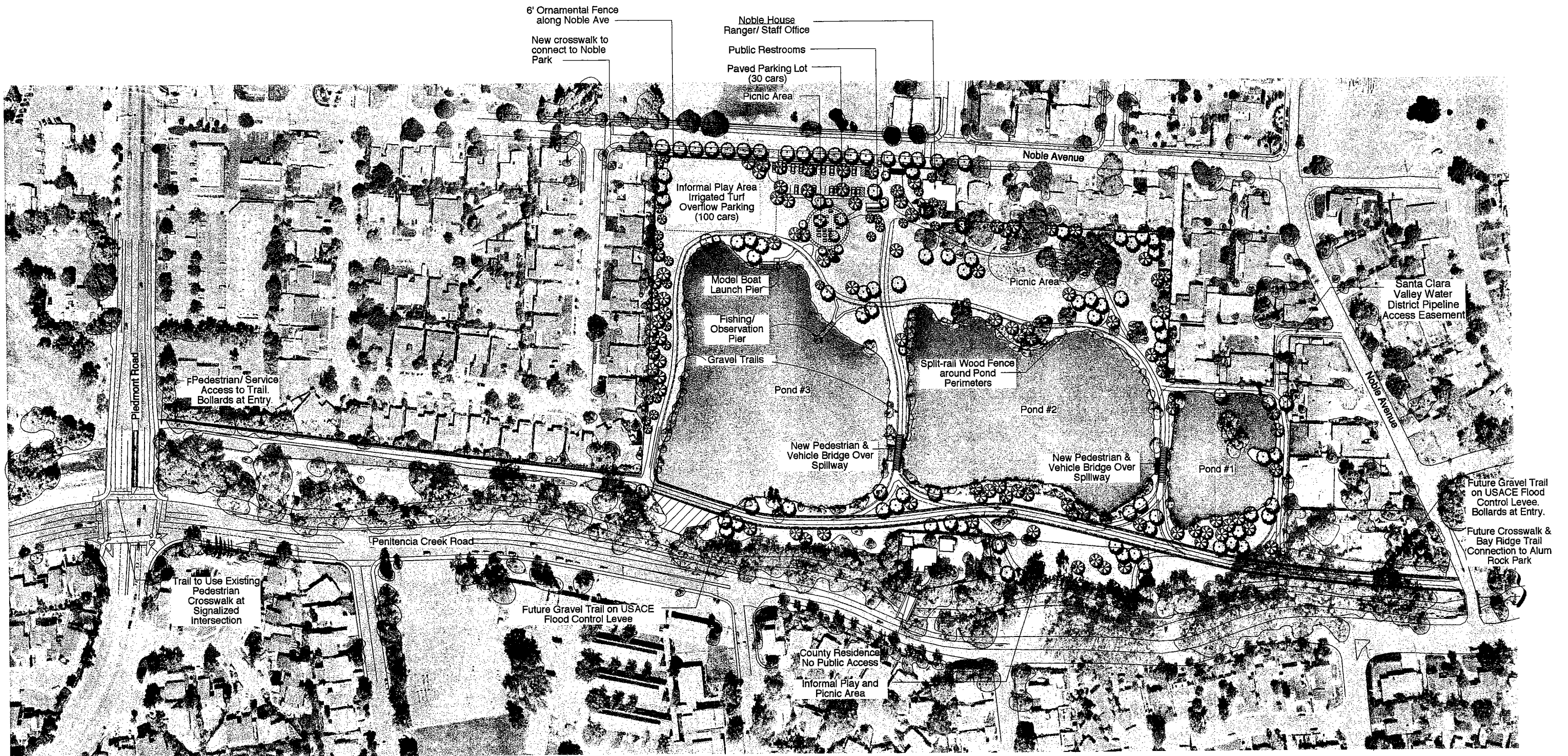
Scale



Amphion

1/17/01

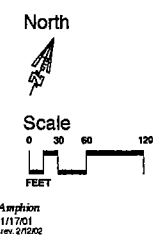
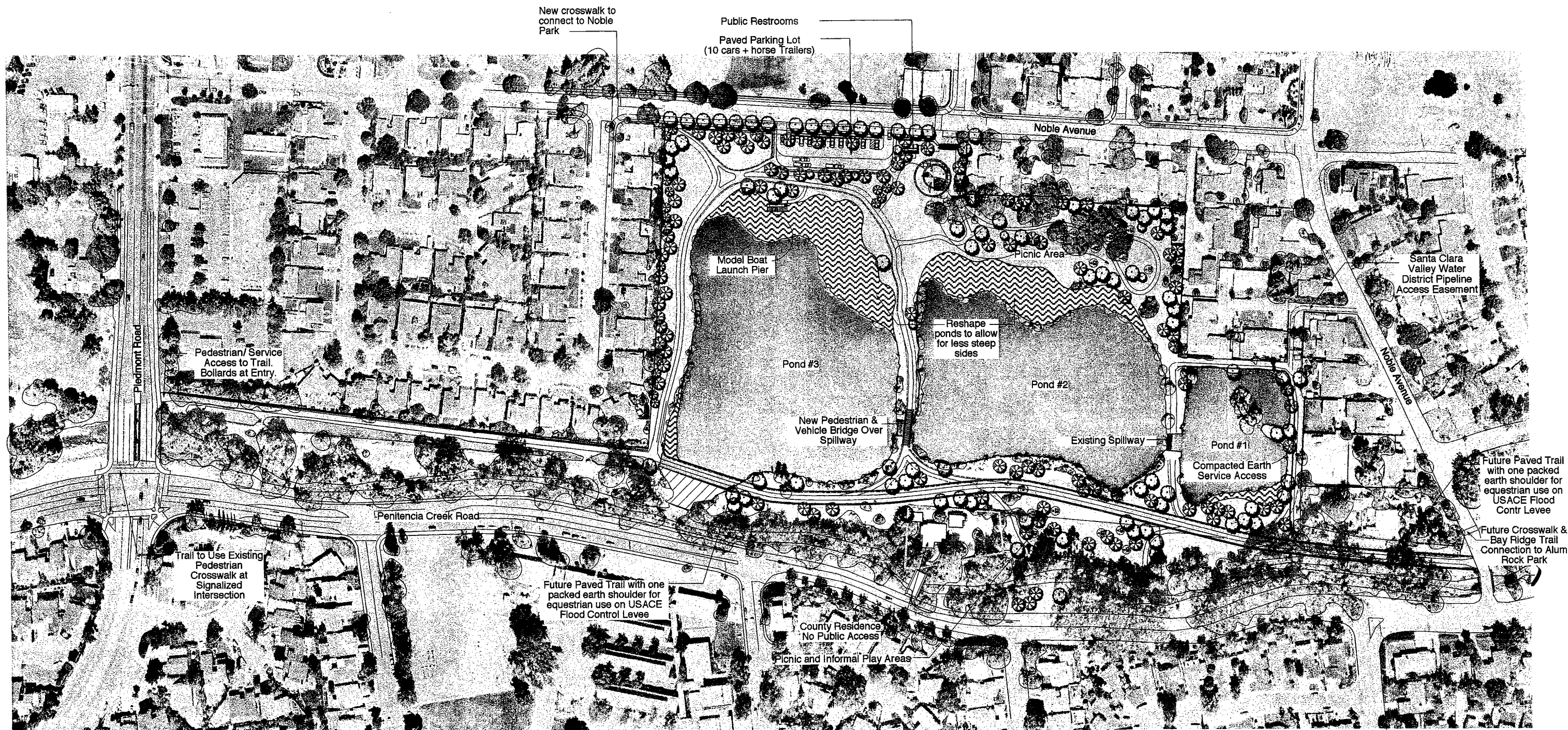




## Alternative 2

Penitencia Creek Reach 2 Master Plan





Alternative 3

Penitencia Creek Reach 2 Master Plan

**Appendix C**  
**City of San José Riparian Corridor Policy Study**  
**“Appendix B Plant species Suitable for Use in and**  
**adjacent to Riparian Corridors, City of San José”**

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Prepared for  
City of San José  
Department of Public Works  
by  
*Amphion*



# **APPENDIX B PLANT SPECIES SUITABLE FOR USE IN AND ADJACENT TO RIPARIAN CORRIDORS, CITY OF SAN JOSE**

Key: X = Suitable Planting Location

Common Name	Scientific Name	Channel Location							
		a	b	c	d	e	f	g	h
TREES									
Big-leaf Maple	<i>Acer macrophyllum</i>				X	X	X		
California Box Elder	<i>Acer negundo</i> ssp. <i>californicum</i>				X	X	X		
California Buckeye	<i>Aesculus californica</i>				X	X	X	X	X
White Alder	<i>Alnus rhombifolia</i>		X	X					
Creek Dogwood	<i>Cornus californica</i>		X	X					
Oregon Ash	<i>Fraxinus latifolia</i>				X	X	X		
California Black Walnut	<i>Juglans hindsii</i>				X	X	X	X	
Western Sycamore	<i>Platanus racemosa</i>				X	X	X	X	
Fremont Cottonwood	<i>Populus fremontii</i>			X	X	X			
Coast Live Oak	<i>Quercus agrifolia</i>					X	X	X	X
Blue Oak	<i>Quercus douglassii</i>						X	X	X
Valley Oak	<i>Quercus lobata</i>					X	X	X	
Sandbar Willow	<i>Salix hindsiana</i>	X	X						
Red Willow	<i>Salix laevigata</i>	X	X	X	X				
Pacific (Yellow) Willow	<i>Salix lasiandra</i>	X	X	X	X				
Arroyo Willow	<i>Salix lasiolepis</i>	X	X	X	X				
Blue Elderberry	<i>Sambucus mexicana</i>				X	X	X	X	
California Bay	<i>Umbellularia californica</i>				X	X	X		
SHRUBS AND WOODY GROUNDCOVERS									
Howard McMinn Manzanita <sup>1</sup>	<i>Arctostaphylos densiflora</i> 'Howard McMinn'					X	X	X	X
Bearberry <sup>1</sup>	<i>Arctostaphylos uva-ursi</i>					X	X	X	X
California Sage (Sagebrush)	<i>Artemesia californica</i>						X	X	X

<sup>1</sup>Species for use only in landscape plantings in setback or buffer areas; not for use within riparian corridors.

Common Name	Scientific Name	Channel Location							
		a	b	c	d	e	f	g	h
Brewer's Saltbush <sup>1</sup>	<i>Atriplex lentiformis</i> var. <i>breweri</i>						X	X	X
Allscale <sup>1</sup>	<i>Atriplex polycarpa</i>						X	X	X
Dwarf Coyote Brush <sup>1</sup>	<i>Baccharis pilularis</i> 'Twin Peaks'				X	X	X	X	X
Coyote Brush	<i>Baccharis pilularis</i> ssp. <i>consanguinea</i>				X	X	X	X	X
Mule Fat	<i>Baccharis viminea</i>			X	X	X			
Frosty Blue Ceanothus <sup>1</sup>	<i>Ceanothus</i> 'Frosty Blue'					X	X	X	X
Blue Wild Lilac	<i>Ceanothus</i> 'Joyce Coulter'					X	X	X	X
Julia Phelps Ceanothus <sup>1</sup>	<i>Ceanothus</i> 'Julia Phelps'					X	X	X	X
Pt. Reyes Creeper <sup>1</sup>	<i>Ceanothus gloriosus</i>				X	X	X	X	X
Dwarf Ceanothus <sup>1</sup>	<i>Ceanothus griseus</i> 'Yankee Pt'				X	X	X	X	X
Carmel Creeper <sup>1</sup>	<i>Ceanothus griseus</i> var. <i>horizontalis</i>				X	X	X	X	X
White Lilac	<i>Ceanothus rigidus</i> 'Snowball'					X	X	X	X
White Wild Lilac <sup>1</sup>	<i>Ceanothus thyrsiflorus</i> 'Snow Flurry'					X	X	X	X
Blue Wild Lilac	<i>Ceanothus thyrsiflorus</i> 'Concha'					X	X	X	X
Sticky Monkey Flower	<i>Diplacus aurantiacus</i>				X	X	X		
California Buckwheat	<i>Eriogonum fasciculatum</i>					X	X	X	X
California Buckwheat	<i>Eriogonum parvifolium</i>					X	X	X	X
Wicker Eriogonum	<i>Eriogonum vimineum</i>					X	X	X	X
Fremont Silk-Tassel Bush	<i>Garrya fremontii</i>					X	X	X	X
Toyon	<i>Heteromeles arbutifolia</i>				X	X	X	X	X
Oceanspray	<i>Holodiscus discolor</i>					X	X	X	
Pitcher Sage	<i>Lepechinia calycina</i>					X	X	X	X
Bush Lupine	<i>Lupinus arboreus</i> var. <i>arboreus</i>				X	X	X	X	X
Western Choke Cherry	<i>Prunus demissa</i>					X	X	X	X
Holly-leaved Cherry	<i>Prunus ilicifolia</i>					X	X	X	X
California Coffeeberry	<i>Rhamnus californica</i> 'Eve Case'				X	X	X	X	X
Dwarf Coffeeberry	<i>Rhamnus californica</i> 'Sea View'				X	X	X		
Red Berry (Buckthorn)	<i>Rhamnus crocea</i>					X	X	X	X
Sugar Bush	<i>Rhus ovata</i>				X	X	X		
Squaw Bush	<i>Rhus trilobata</i>					X	X	X	X

<sup>1</sup>Species for use only in landscape plantings in setback or buffer areas; not for use within riparian corridors.



Common Name	Scientific Name	Channel Location							
		a	b	c	d	e	f	g	h
Flowering Current	<i>Ribes glutinosum</i>				X	X	X		
Red Flowering Currant	<i>Ribes sanguineum</i> var. <i>sanguineum</i>				X	X	X		
Evergreen Current	<i>Ribes viburnifolium</i>					X	X		
California Wild Rose	<i>Rosa californica</i>			X	X	X	X		
California Blackberry	<i>Rubus ursinus</i> (vitifolius)			X	X	X	X	X	X
Black Sage	<i>Salvia mellifera</i>					X	X	X	X
Sonoma Sage	<i>Salvia sonomensis</i>					X	X	X	X
Hummingbird Sage	<i>Salvia spathacea</i>					X	X	X	X
Creeping Snowberry	<i>Symphoricarpos mollis</i>				X	X	X		
Common Snowberry	<i>Symphoricarpos rivularis</i>				X	X		X	X
Poison Oak	<i>Toxicodendron diversilobum</i>				X	X	X		
California Fuchsia	<i>Zauschneria californica</i>				X	X	X	X	X
<b>VINES</b>									
Virgin's Bower	<i>Clematis lasiantha</i>			X	X	X			
Hairy Honeysuckle	<i>Lonicera hispidula</i> var. <i>vacillans</i>			X	X	X			
Wild Grape	<i>Vitis californica</i>				X	X	X		
<b>HERBACEOUS GROUNDCOVERS &amp; GRASSES</b>									
White Yarrow	<i>Achillea millefolium</i>				X	X	X	X	X
Bent Grass	<i>Agrostis hallii</i>				X	X	X	X	X
Pigweed	<i>Amaranthus</i> sp.		X	X					
Mugwort	<i>Artemisia douglasiana</i>			X	X	X			
Western Aster	<i>Aster chilensis</i>			X	X				
Rattlesnake Grass <sup>1</sup>	<i>Briza maxima</i>				X	X	X	X	X
California Brome	<i>Bromus carinatus</i>				X	X	X	X	X
Evening Primrose	<i>Camissonia cheiranthifolia</i>				X	X	X	X	X
Farewell-to-Spring	<i>Clarkia amoena</i>				X	X	X	X	X
Large Godetia	<i>Clarkia purpurea</i>				X	X	X	X	
Water Grass	<i>Echinochloa crusgalli</i>		X						
Wild Rye Grass	<i>Elymus glaucus</i>				X	X	X	X	X
Creeping Wild Rye Grass	<i>Elymus triticoides</i>				X	X	X	X	X

<sup>1</sup>Species for use only in landscape plantings in setback or buffer areas; not for use within riparian corridors.

Common Name	Scientific Name	Channel Location							
		a	b	c	d	e	f	g	h
Coast Buckwheat	<i>Eriogonum latifolium</i>					X	X	X	X
California Poppy	<i>Eschscholzia californica</i>				X	X	X	X	X
Red Fescue	<i>Festuca rubra</i>				X	X	X	X	X
Blue Thimble Flower	<i>Gilia capitata</i>				X	X	X		
Wild Licorice	<i>Glycyrrhiza lepidota</i>			X	X	X			
Meadow Barley	<i>Hordeum branchyantherum</i>		X	X	X				
Wild Iris	<i>Iris douglasiana</i>				X	X	X		
Deerweed	<i>Lotus scoparius</i>				X	X	X		
Annual Lupine	<i>Lupinus bicolor</i>				X	X	X	X	X
Dense-flowered Lupine	<i>Lupinus densiflorus</i>				X	X	X	X	X
Sky Lupine	<i>Lupinus nanus</i>				X	X	X	X	X
Arroyo Lupine	<i>Lupinus succulentus</i>				X	X	X	X	X
Scarlet Monkeyflower	<i>Mimulus cardinalis</i>					X	X	X	X
Baby Blue Eyes	<i>Nemophila</i> sp.			X	X				
Dense Owls Clover	<i>Orthocarpus densiflorus</i>				X	X	X	X	X
Owls Clover	<i>Orthocarpus purpurascens</i>				X	X	X	X	X
California Blue Bell	<i>Phacelia campanularia</i>					X	X	X	X
Popcorn Flower	<i>Plagiobothrys</i> sp.				X	X	X	X	X
California Buttercup	<i>Ranunculus californicus</i>				X	X	X		
Yerba Buena	<i>Satureja douglasii</i>				X	X	X		
Blue-eyed Grass	<i>Sisyrinchium bellum</i>					X	X	X	X
Western Goldenrod	<i>Solidago occidentalis</i>				X	X	X	X	X
Purple Needlegrass	<i>Stipa pulchra</i>					X	X	X	X
Red Clover <sup>2</sup>	<i>Trifolium hirtum</i>			X	X	X	X	X	X
Crimson Clover <sup>2</sup>	<i>Trifolium incarnatum</i>			X	X	X	X	X	X
Dutch White Clover <sup>2</sup>	<i>Trifolium repens</i>				X	X	X	X	X
Zorro Fescue <sup>2</sup>	<i>Vulpia myuros</i> "Zorro"				X	X	X	X	X
<b>AQUATIC &amp; MARSH PLANTS</b>									
Salt Grass	<i>Distichlis spicata</i>			X	X	X			
Needle Spike-Rush	<i>Eleocharis acicularis</i>	X	X	X					
Marsh Gum Plant	<i>Grindelia humilis</i>				X	X	X		

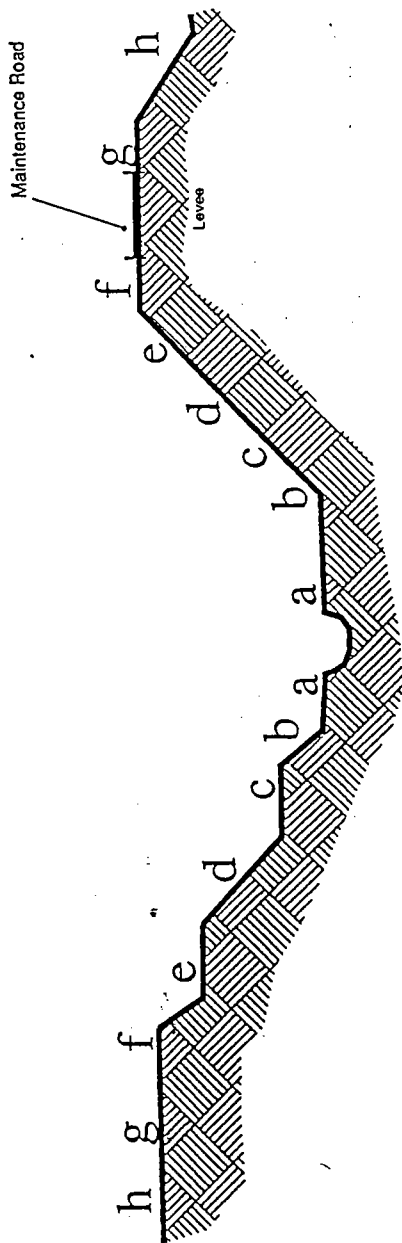
<sup>2</sup>Species to be used only for erosion control.

Common Name	Scientific Name	Channel Location							
		a	b	c	d	e	f	g	h
Water Smartweed	<i>Polygonum punctatum</i>	X	X						
Curly Dock	<i>Rumex crispus</i>		X	X					
Common Pickleweed	<i>Salicornia pacifica</i>		X	X					
California Bulrush	<i>Scirpus californicus</i>	X	X						
Olney's Bulrush	<i>Scirpus olneyii</i>	X	X						
Alkali Bulrush	<i>Scirpus robustus</i>	X	X						
Soft Flag Cattail	<i>Typha latifolia</i>	X	X						

**PLANT SPECIES PARTICULARLY UNSUITABLE  
FOR USE IN AND ADJACENT TO RIPARIAN CORRIDORS**

<b>TREES</b>
Acacia
Black locust
Tree-of-heaven
Eucalyptus
English elm
<b>SHRUBS</b>
French, Scotch and Spanish broom
Tamarisk
Himalaya berry
Tree tobacco
<b>HERBACEOUS/SEMI-WOODY SPECIES</b>
Pampas grass
Giant reed
Periwinkle
German, Algerian and English ivy
Johnson grass
Kikuyu grass
Cocklebur
Russian thistle
Bull thistle
Poison hemlock
Milk thistle
Star thistle (yellow and purple)

# Channel Planting Locations



Key to Planting Locations or Localized Conditions	
a	Streambed / border of low flow channel
b	Toe of bank or at base of berm (bench) within channel
c	Lower bank slope or on berm (bench) within channel
d	Middle bank slope
e	Upper bank slope or on high bench within channel
f	Top of bank (inboard of maintenance road)
g	Level ground (outside maintenance road)
h	Outside levee slope or level ground far away from channel bank

